ORDER NO. GAD8705083C2

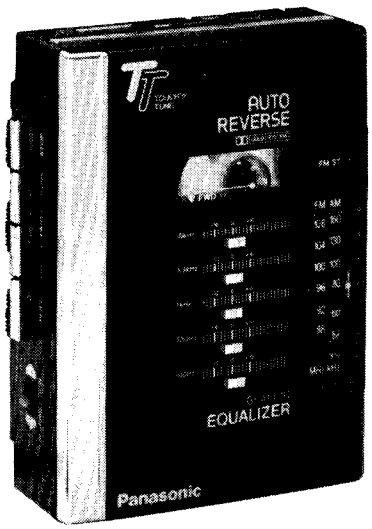
Service Manual

Radio Cassette

Stereo Radio Cassette Player

RX-SA78

(Black)



This is the Service Manual for the following areas.

[Z]···For all European areas except United Kingdom, F.R. Garmany, France, Italy and Finland.

[ZE]···For United Kingdom.

RX-SA77 MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	Battery; 3V (two UM-3, "AA" size batteries) AC; 220V, 50Hz with optional AC adaptor RD-9443HS (For UK, 240V, 50Hz with optional AC adaptor RD-9443HE)
Power Output:	40mW (20mW × 2)... RMS (max.)
Input:	DC IN; 3V (mini jack)
Output:	Headphones; 16Ω φ3.5
Dimensions:	84 (W) × 113 (H) × 33.5 (D) mm
Weight:	270g without batteries

Radio Section:

Radio Frequency Range:	FM; 87.5~108MHz AM; 520~1610kHz
Intermediate Frequency:	FM; 10.7MHz AM; [Z]...455kHz [ZE]...470kHz
Sensitivity;	FM; 3.98μV/1mW output (−3dB Limit sens) (FM Manual Tuning) 3.16μV/1mW output (−3dB Limit sens) (FM Preset Tuning) AM; 100μV/m/1mW output

Tape Deck Section:

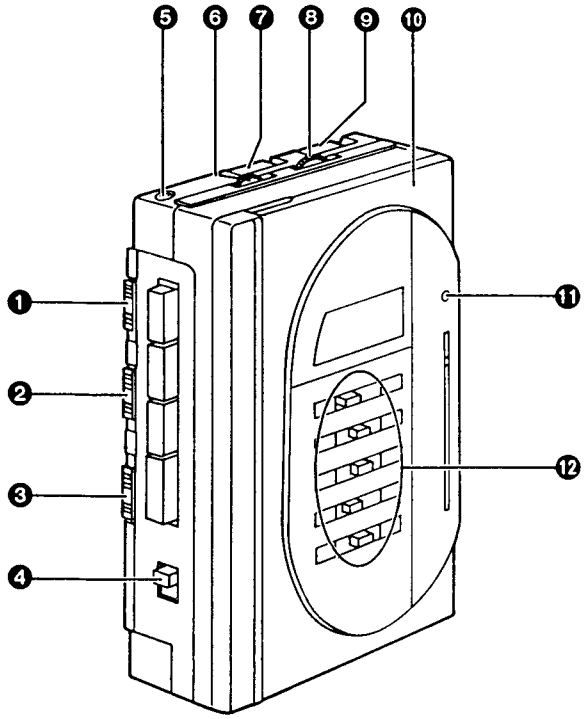
Frequency Response:	Normal; 50~12000Hz CrO_2; 50~12000Hz Metal; 50~12000Hz
Motor:	Electrical governor motor
Track System:	4-track 2-channel stero playback
Tape Speed:	4.8cm/s

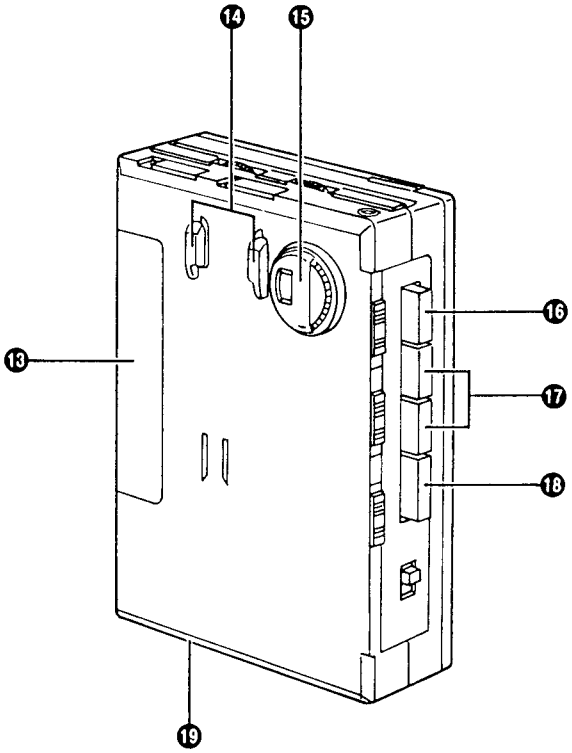
Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS





❶ *Dolby Noise Reduction Switch (DOLBY NR)
❷ Tape Selector (TAPE)
❸ Function Selector (SELECTOR)
❹ Tape Direction Selector (DIRECTION)
❺ Headphones Jack ( ) (φ3.5 16Ω)
❻ Volume Control (VOLUME)
❼ Touch 'n' Tune Selector (TOUCH 'n' TUNE)
❽ Tuning Control (TUNING)
❾ Band Selector (BAND)
❿ Cassette Compartment
⓫ FM Stereo Indicator (FM ST)
⓬ Graphic Equalizer Controls (EQUALIZER)
⓭ Battery Compartment
⓮ Clip Receptacle
⓯ FM Preset Tuning Control (FM PRESET TUNING)
⓰ Stop Button (■ STOP)
⓱ Fast Buttons (▲• ▼ FAST)
⓲ Playback Button (▲PLAY)
⓳ DC Input Jack [Bottom] (DC IN 3 V ⊖-●-⊕)

*"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

DISASSEMBLY INSTRUCTIONS

■ Disassemble and assemble the unit with care since a flexible printed circuit board is used.

■ Removing the Rear Cabinet

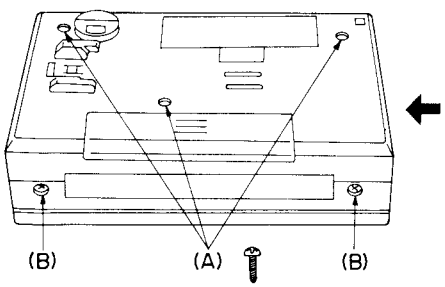


Fig. 1

1. Remove the screws (A) (2 × 8) mm × 3.
2. Remove the screws (B) (1.7 × 4) mm × 2.
3. Push the inside of the Front Cabinet in the direction of arrow.

■ Removing the Main Circuit Board

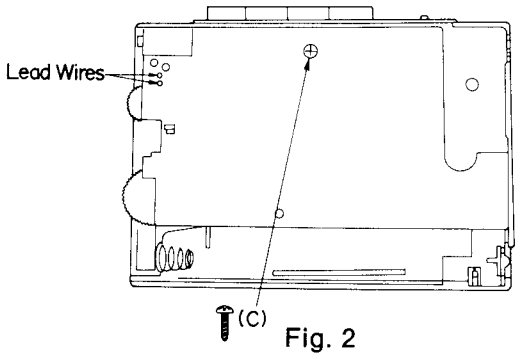


Fig. 2

1. Disconnect the two soldered connections of the lead wires.
2. Remove the screw (C) (1.6 × 4) mm × 1.

D

■ Removing the Mechanism

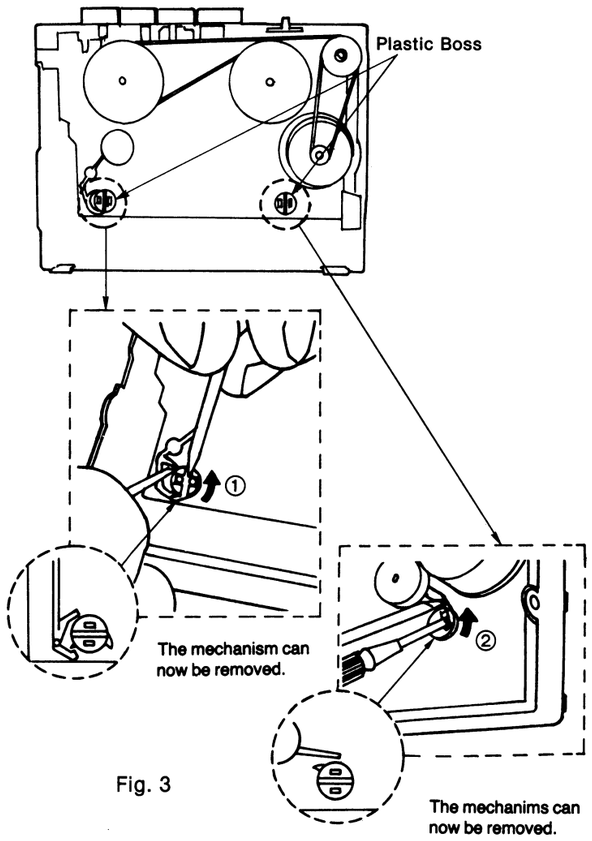


Fig. 3

Remove the lugs of the plastic bosses. Turn each boss 90° in the direction of arrows ① and ②, and remove the mechanism from the cabinet.

■ Dial Setting Point

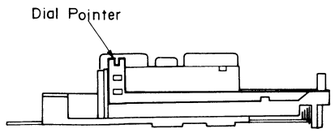


Fig. 7

1. Set the dial pointer to the position shown in Fig. 7.

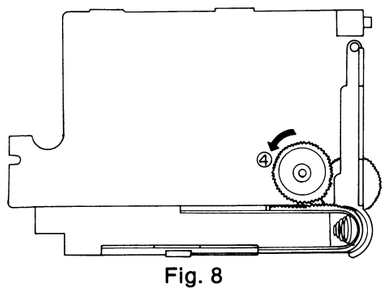


Fig. 8

2. Turn the drum gear fully in the direction of the arrow ④. (Fig. 8)
3. Attach the dial chassis to the main circuit board.

■ Removing the Cassette Compartment and the Graphic Equalizer Circuit Board

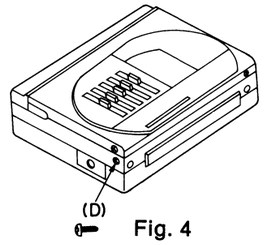


Fig. 4

1. Remove the screw (D) (1.6 × 2) mm × 1.

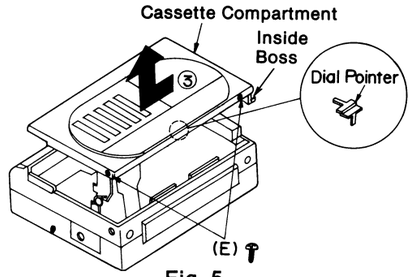


Fig. 5

2. Push the cassette lid in the direction of arrow ③, and disconnect the inside boss.
3. Remove the screw (E) (1.6 × 3) mm × 2.

NOTE:

Remove the graphic equalizer circuit board as shown in Fig. 5. At this time, be careful not to loose the dial pointer.

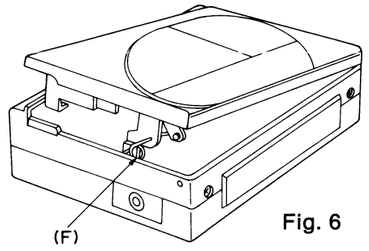


Fig. 6

4. Remove the spring (F).

■ Caution on assembly of Cassette Compartment

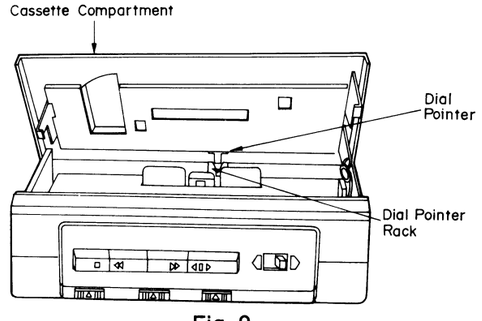


Fig. 9

1. Line up the dial pointer and the dial pointer rack, and securely attach the cassette compartment. (Fig. 9)

2. When attaching a graphic equalizer circuit board to the cassette compartment, remove the cassette compartment from the cabinet, and tighten the screws while holding the circuit board in place with one hand.

■ Caution on assembly of Rear Cabinet

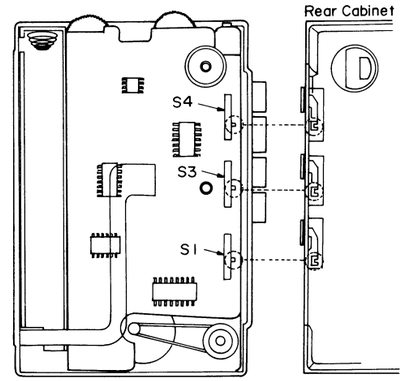


Fig. 10

Line up each switch with its respective switch boss, and securely attach the rear cabinet. (Fig. 10)

■ How to Replace the Cassette Compartment Spring

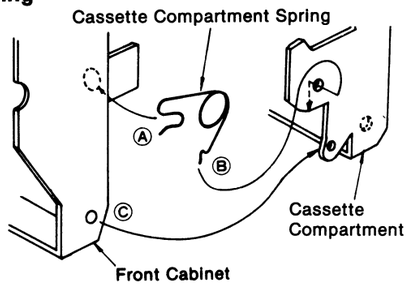


Fig. 11

1. Fit part Ⓐ on the shaft of the front cabinet.
2. Insert part Ⓑ in the hole in the cassette compartment.
3. Fit the boss Ⓒ in the cassette compartment (same on right side).

■ Replacement of a Plastic Boss

If a plastic boss for attachment of the mechanism should become broken, replace it by following the procedure below.

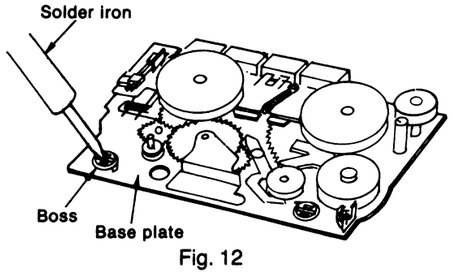


Fig. 12

1. Use a soldering iron to melt and remove the damaged boss.

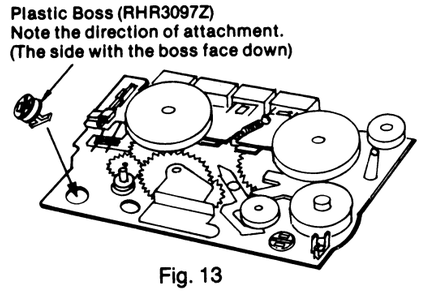
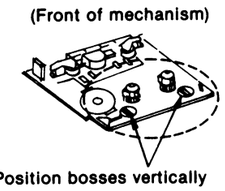


Fig. 13

2. Attach the plastic boss (RHR3097Z) located on the back of the mechanism.
   (The boss is not attached to the base plate, so be careful not to lose it until the front cabinet is assembled.)



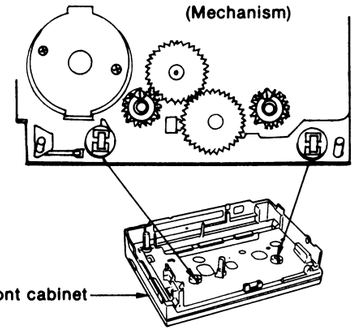


Fig. 14

3. Position plastic bosses vertically and insert them in the holes in the front cabinet. (Make sure they are firmly in place.)

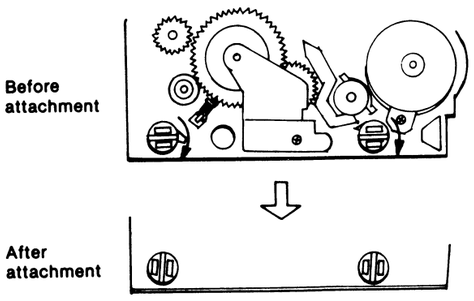


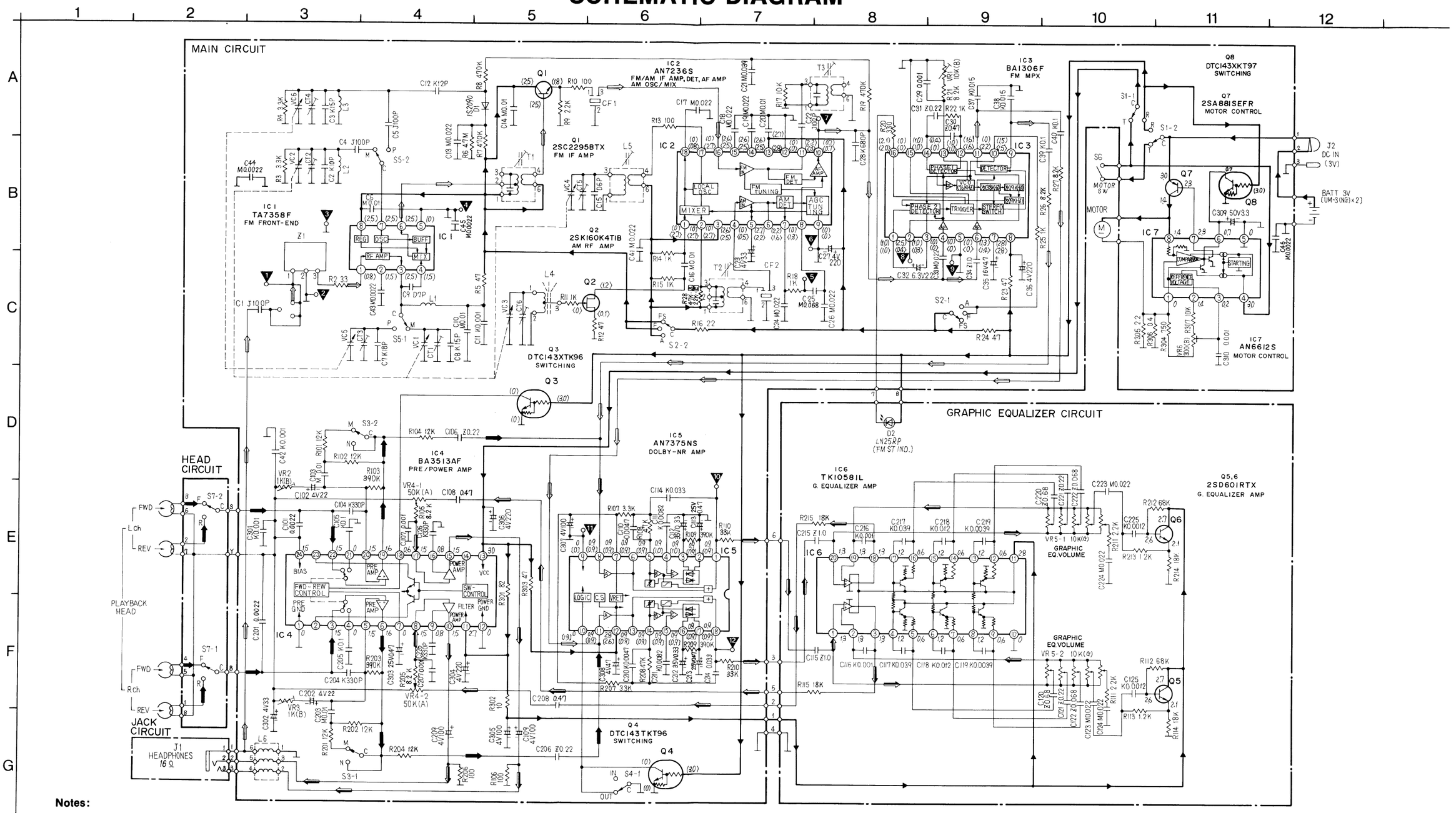
Fig. 15

4. Use a flat-head screwdriver to turn the bosses 90° in the direction of the arrows. (There are lugs in the front cabinet, so the bosses will not turn in the opposite direction.)
5. Make sure the mechanism is secure in the cabinet.

▼ Be sure to fold at the (▼) mark so that mark is on the outside.

D

SCHEMATIC DIAGRAM



Notes:

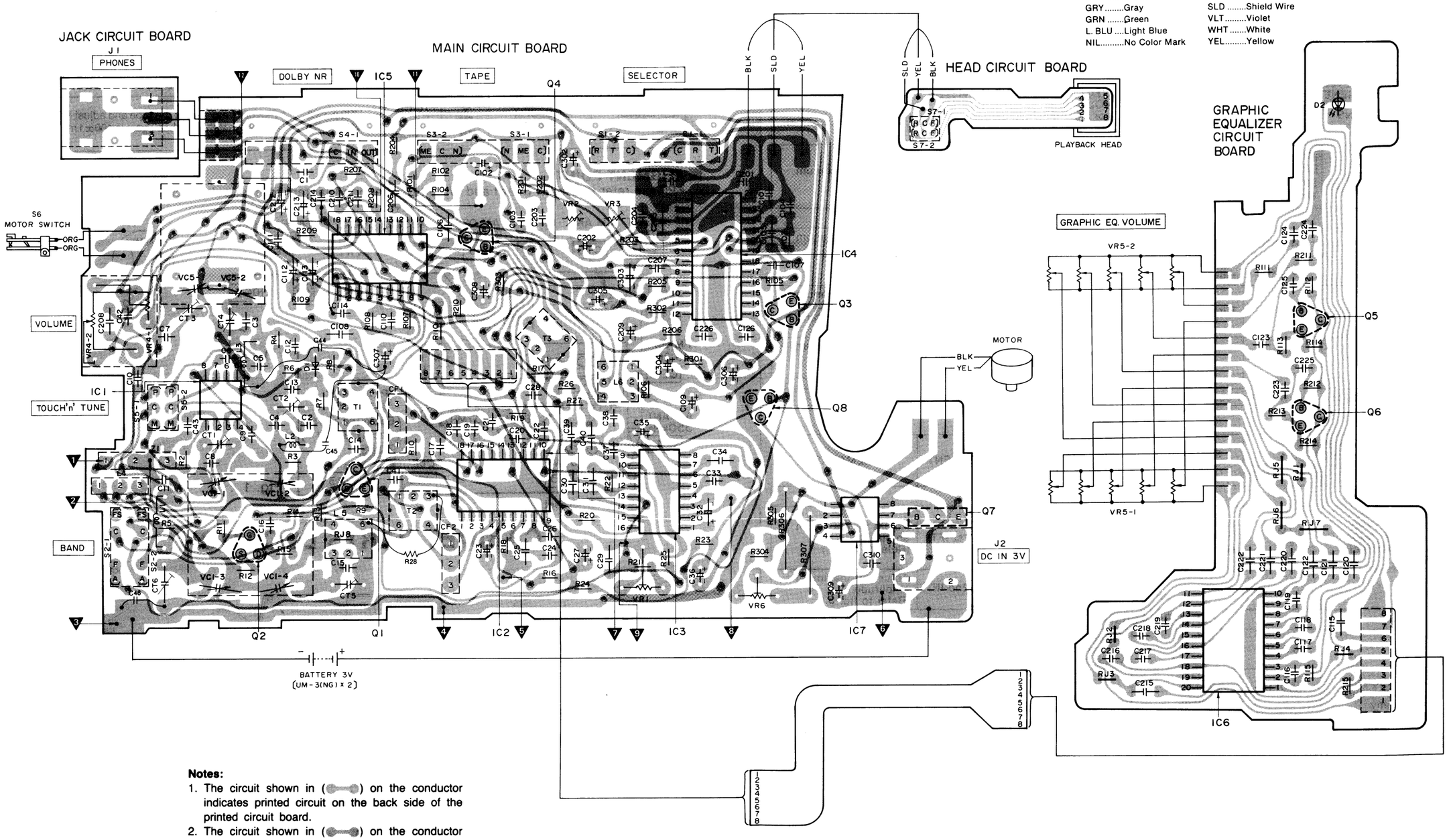
1. S1-1, S1-2: Function Select Switch in "TAPE/RADIO OFF" position. (R...Radio, T...TAPE/RADIO OFF)
2. S2-1, S2-2: Band Select Switch in "FM STEREO" position. (F.S...FM STEREO, F...FM MONO, A...AM)
3. S3-1, S3-2: Tape Select Switch in "METAL CrO_2" position. (M...METAL CrO_2, N...NORMAL)
4. S4: Dolby N.R. Switch in "OUT" position.
5. S5-1, S5-2: Touch "n" Tune Switch in "MANUAL" position. (M...MANUAL, P...FM PRESET)
6. S6: Motor Switch in "OFF" position.
7. S7-1, S7-2: Direction Switch in "FWD" position. (F...FWD, R...REV)
8. VR1: FM VCO adjustment VR.
9. VR2: Playback gain (Lch) ajdustment VR.
10. VR3: Playback gain (Rch) adjustment VR.
11. VR4-1, VR4-2: Volume control VR.
12. VR5-1, VR5-2: Graphic equalizer VR.
13. VR6: Tape speed adjustment VR.
14. The mark (▼) shows test point. e.g.▼1=test point 1.
15. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery. ( )...FM Position, 〈 〉...AM Position, No mark...Playback position, [ ]...Playback (Dolby NR IN) position
16. Battery current: No signal ..... 29mA, Maximum output (radio) ..... 43mA, Maximum output (tape) 264mA
17. The supply parts number is described alone in the replacement parts list.

→ : +B Line
⇨ : Radio (FM) signal Line
➡ : Tape (Playback) signal Line
⇒ : Audio (Tape/Radio) signal Line

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

NOTES:

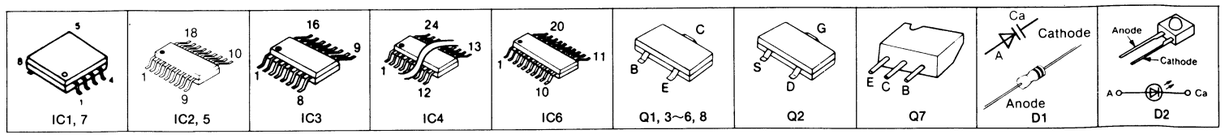
BLK .....Black	ORG .....Orange
BLU .....Blue	PNK .....Pink
BRN.....Brown	RED .....Red
GRY.....Gray	SLD .....Shield Wire
GRN .....Green	VLT.....Violet
L. BLU ....Light Blue	WHT .....White
NIL.....No Color Mark	YEL.....Yellow



Notes:

1. The circuit shown in (▬) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in (▬) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

•This circuit board diagram may be modified at any time with the development of new technology.



MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set graphic equalizer control to center.
3. Set band switch to AM or FM ST.
4. Set selector switch to RADIO or TAPE/RADIO [OFF].
5. Set power source voltage to 3V DC.
6. Set Dolby NR Switch to OUT.
7. Set Tape Select Switch to NORMAL.
8. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		AM-IF ALIGNMENT					
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	[Z]...455kHz [ZE]...470kHz 30% Mod. at 400 Hz	Point of non-interference. (on/about 600kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
		AM-RF ALIGNMENT					
(2)	AM	"	511kHz	Tuning capacitor fully closed.	"	L5 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	"	1,670kHz	Tuning capacitor fully open.	"	CT5 (AM OSC Trimmer)	"
(4)	AM	"	550kHz	Tune to signal.	"	(*1) L4 (AM ANT Coil)	Adjust for maximum output. Adjust L4 by moving coil bobbin along ferrite core.
(5)	AM	"	1,500kHz	"	"	CT6 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).

(*1) Cement antenna bobbin with wax after completing alignment.

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001μF to test point ▼4. Negative side to test point ▼2.	10.7MHz (SWP.)	Point of non-interference. (on/about 90MHz)	Connect vert. amp. of scope to test point ▼1. Negative side to test point ▼3.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
(2)	FM	"	"	"	"	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	86.2 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2/L3 (*3) (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	"	CT2/CT4 (*3) (FM OSC Trimmer)	"
(5)	FM		90MHz	Tune to signal.	"	L1 (FM ANT Coil)	"
(6)	FM		106MHz	"	"	CT1/CT3 (*3) (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).

(*2) Three output responses will be present; proper tuning is the center frequency. (*3) For FM Preset Tuning.

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98MHz, 60dB (CW) Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2	▼8...(+) ▼3...(−)	VR1	19kHz	Adjust VR1, for 19kHz (±100Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
(A) Azimuth	QZZCFM (8kHz, −20dB)	Headphones jack (32Ω)	Azimuth adjustment screw (Refer to Fig. 4)	Adjust the azimuth adjustment screw during repeated forward and reverse playback to obtain the maximum head azimuth alignment with both channels equal. Then screw-lock the adjustment in place.
(B) Tape speed	QZZCWAT (3kHz, −10dB)	"	VR6 (Refer to Fig. 1)	Playback the central part of the tape and adjust VR6 so that the tape speed is as follows. 3000±10Hz (Forward & Reverse)
(C) Playback gain	QZZCFM (315 Hz, 0 dB)	▼9...(+) L-CH ▼1...(−) ▼12...(+) R-CH	VR2 (L-CH) VR3 (R-CH)	Playback any part of the tape and adjust VR2 and VR3 so that the playback gain is 100±1mV.

■ ALIGMENT POINTS

• Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

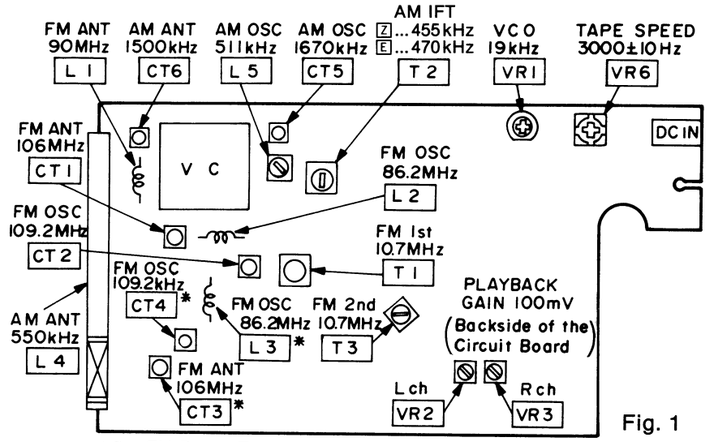


Fig. 1

Fig. 2

Fig. 3

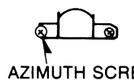
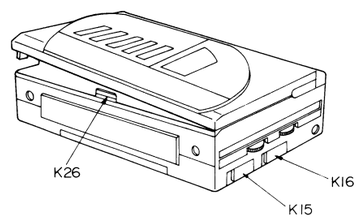
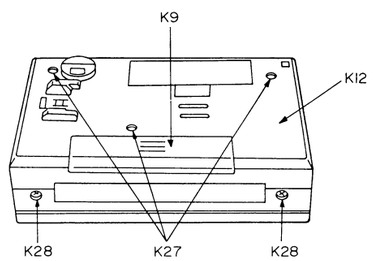


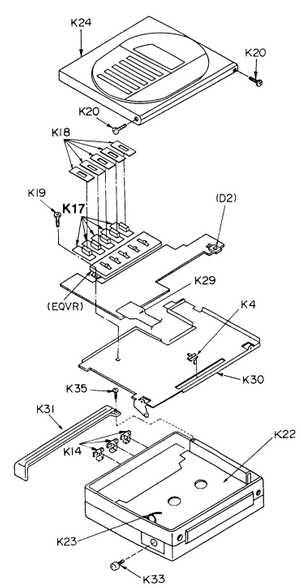
Fig. 4

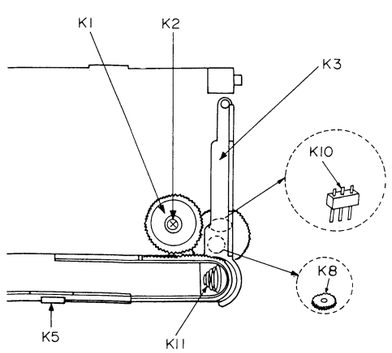
*For FM Preset Tuning.

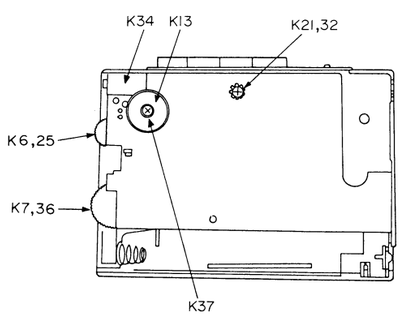
CABINET PARTS LOCATION







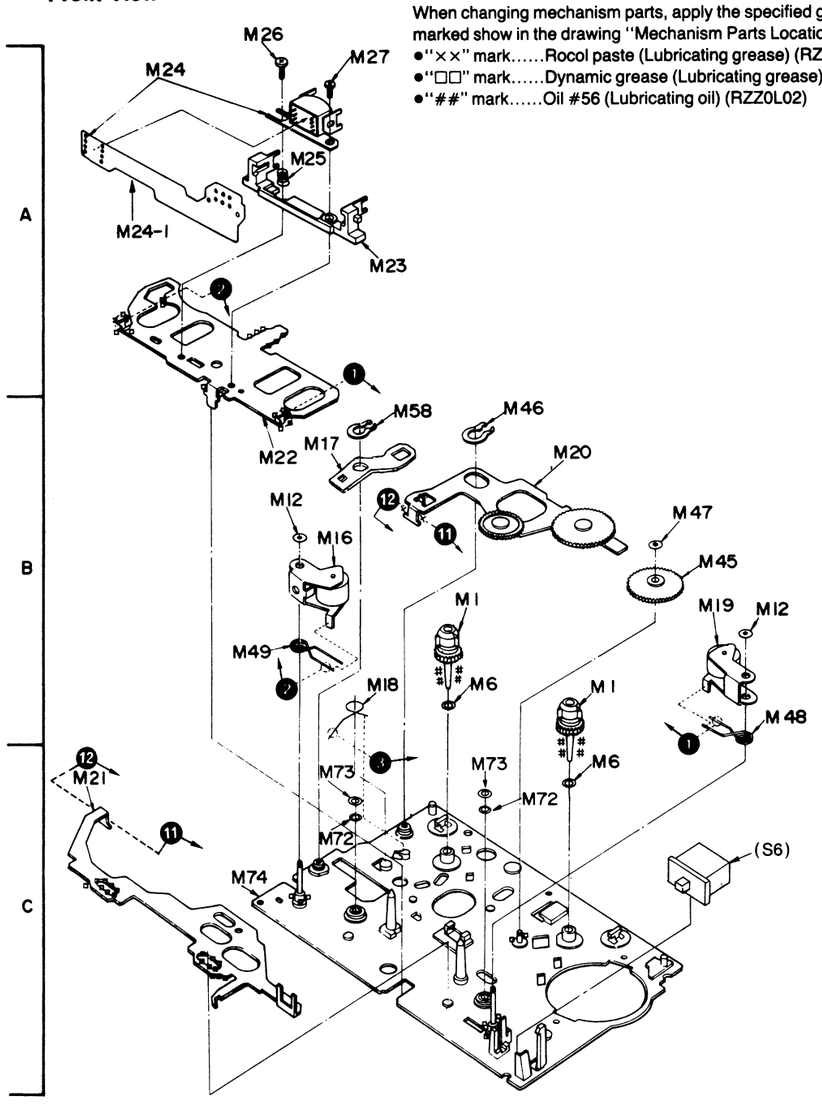




MECHANISM PARTS LOCATION

NOTES:
When changing mechanism parts, apply the specified grease to the area marked show in the drawing "Mechanism Parts Location".
- "××" mark.....Rocol paste (Lubricating grease) (RZZ0L06)
- "□□" mark.....Dynamic grease (Lubricating grease) (RZZ0L05)
- "##" mark.....Oil #56 (Lubricating oil) (RZZ0L02)

• **Front View**



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■ RESISTORS & CAPACITORS

Numbering System of Resistor

Example:

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)

ERJ	6G	C	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage	Value (1000pF)	Tolerance	Peculiarity

ECEA	50	M	R47
Type	Voltage	Peculiarity	Value (0.47μF)

Resistor Type		Wattage	Tolerance
ERD:	Carbon Resistor	10 : 1/8W	F : ±1%
ERC:	Solid Resistor	25 : 1/4W	G : ±2%
ERF:	Incombustible Box-Shaped Wire-Wound Resistor	50 : 1/2W	J : ±5%
		18 : 1/8W	K : ±10%
		14 : 1/4W	M : ±20%
		12 : 1/2W	
ERG:	Metal Oxide-Film Resistor	1 : 1W	
		2 : 2W	
ERM:	Wire-Wound Resistor	3 : 3W	
		S1 : 1/2W	
ERO:	Superstable Metal Film Resistor	S2 : 1/4W	
		6G : 1/10W	
		8G : 1/8W	
ERX:	Metal-Film Resistor		
RRJ: ERJ:	Chip Resistor		

※ Capacity are in microfarads (μF) unless specified otherwise, P=Pico-farads.
※ Resistance are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000KΩ

Capacitor Type		Voltage	Tolerance
ECCD:	Ceramic Capacitor (Chitacon)	(ECCD, ECKD Type) 1H : 50V DC 2H : 500V DC	K : ±10% M : ±20% Z : +80, −20% J : ±5% G : ±2% F : ±1% C : ±0.25pF D : ±0.5pF
ECKD:	Ceramic Capacitor (Chitabari)	(ECFD Type) C : 12V DC D : 25V DC	
ECFD:	Semiconductor Ceramic Capacitor	E : 50V DC	
ECE□:	Electrolytic Capacitor	(ECQ Type) 05 : 50WV DC 1 : 100WV DC	
ECS□:	Tantalum Fixed Electrolytic Capacitor	(ECE, ECS Type) 0G : 4V 0J : 6.3V	
ECQ□:	Polystyrenc Film Capacitor	1A : 10V 1C : 16V	
ECQS:	Polystyrene Film Capacitor	1E : 25V 1V : 35V	
ECQS:	Polypropylene Film Capacitor	1H : 50V 1J : 63V	
ECQV:	T.F Capacitor	2A : 100V	
ECU□: RCU□:	Chip Capacitor		
ECBT:	Cylindrical Ceramic Capacitor		

The leter in square brackets in the Ref. No. column indicates the shipping destination.
[Z]...For all European areas except United Kingdom, F.R. Germany, France, Italy and Finland.
[ZE]...For United Kingdom.

Ref. No.	Part No.	Part Code
RESISTORS		
R2	RRJ6GCJ330	001 152 5882 3
R3, R4	RRJ6GCJ332TE	001 151 7178 7
R5	RRJ6GCJ470TE	001 151 7180 3
R6	RRJ6GCJ475	001 151 7310 1
R7, R8	RRJ6GCJ474	001 152 5869 0
R9	RRJ6GCJ222TE	001 151 7172 3
R10	RRJ6GCJ101TE	001 151 7162 5
R11	RRJ6GCJ102TE	001 151 7163 4
R12	RRJ6GCJ470TE	001 151 7180 3
R13	RRJ6GCJ101TE	001 151 7162 5
R14, R15	RRJ6GCJ102TE	001 151 7163 4
R16	RRJ6GCJ220TE	001 151 7171 4
R17	RRJ6GCJ103TE	001 151 6750 5
R18	RRJ6GCJ102TE	001 151 7163 4
R19	RRJ6GCJ474	001 152 5869 0
R20	RRJ6GCJ331TE	001 151 7177 8
R21	RRJ6GCJ822	001 152 5871 6
R22	RRJ6GCJ102TE	001 151 7163 4
R23, R24	RRJ6GCJ470TE	001 151 7180 3
R25	RRJ6GCJ102TE	001 151 7163 4
R26, R27	RRJ6GCJ822	001 152 5871 6
R28 (E)	ERD16TJ223	001 152 3977 5
R28 (Z)	ERD16TJ473	001 152 3991 7
R101, R102	RRJ6GCJ123TE	001 151 6449 7
R103	RRJ6GCJ394TE	001 151 7179 6
R104	RRJ6GCJ123TE	001 151 6449 7
R105	RRJ6GCJ822	001 152 5871 6
R106	RRJ6GCJ101TE	001 151 7162 5
R107	RRJ6GCJ332TE	001 151 7178 7
R108	RRJ6GCJ473TE	001 151 6450 4
R109	RRJ6GCJ394TE	001 151 7179 6
R110	RRJ6GCJ333	001 152 5867 2
R111	RRJ6GCJ222TE	001 151 7172 3
R112	RRJ6GCJ683TE	001 151 6684 8
R113	RRJ6GCJ122	001 151 7222 0
R114, R115	RRJ6GCJ183TE	001 151 6506 5
R201, R202	RRJ6GCJ123TE	001 151 6449 7
R203	RRJ6GCJ394TE	001 151 7179 6
R204	RRJ6GCJ123TE	001 151 6449 7
R205	RRJ6GCJ822	001 152 5871 6
R206	RRJ6GCJ101TE	001 151 7162 5
R207	RRJ6GCJ332TE	001 151 7178 7
R208	RRJ6GCJ473TE	001 151 6450 4
R209	RRJ6GCJ394TE	001 151 7179 6
R210	RRJ6GCJ333	001 152 5867 2
R211	RRJ6GCJ222TE	001 151 7172 3
R212	RRJ6GCJ683TE	001 151 6684 8
R213	RRJ6GCJ122	001 151 7222 0
R214, R215	RRJ6GCJ183TE	001 151 6506 5
R301	RRJ6GCJ820TE	001 151 7027 1
R302	RRJ6GCJ100TE	001 151 6749 8
R303	RRJ6GCJ470TE	001 151 7180 3
R304	RRJ6GCJ751TE	001 151 7311 0
R305	RRJ6GCJ2R2TE	001 103 9180 5
R306	ERSB39JR40	001 151 4007 7
R307	ERSB15J103	001 151 2888 4
RJ1, RJ2	RRJ6GCJ000TE	001 151 7161 6
RJ3, RJ4	RRJ6GCJ000TE	001 151 7161 6
RJ5, RJ6	RRD18XJ000E	001 151 2751 0
RJ7	RRD18XJ000E	001 151 2751 0
RJ8	RRJ6GCJ000TE	001 151 7161 6
CAPACITORS		
C1	RCUV1H101K	001 103 9229 5
C2	RCUV1H100DC	001 103 8826 4
C3, C3	RCUV1H150KC	001 103 9235 7
C4, C5	RCUV1H101K	001 103 9229 5
C6	RCUV1H103MB	001 103 9075 5
C7	RCUV1H180KC	001 103 9239 3
C8	RCUV1H150KC	001 103 9235 7
C9	RCUV1H070D	001 103 9152 9
C10	RCUV1H103MB	001 103 9075 5
C11	RCUV1H102KB	001 103 8329 6
C12	RCUV1H120KC	001 103 9233 9
C13	RCUV1E223MB	001 103 9414 6
C14	RCUV1H103MB	001 103 9075 5
C15	RCUV1H060D	001 103 8962 7
C16	RCUV1H103MB	001 103 9075 5
C17, C18	RCUV1E223MB	001 103 9414 6
C19	RCUV1E223MB	001 103 9414 6
C20	RCUV1H103MB	001 103 9075 5
C21	RCUV1E393MB	001 103 9416 4
C22	RCUV1H101K	001 103 9229 5
C23	ECEA0GKS330L	001 120 5908 8
C24	RCUV1E223MB	001 103 9414 6
C25	ECUV1E683MD	
C26	RCUV1E223MB	001 103 9414 6
C27	ECEA0GKS221L	001 120 5907 9
C28	RCUV1H681KB	001 103 9255 3
C29	ECUV1H102KC	001 103 6755 0
C30	ECUV1C474ZF	001 103 8059 9
C31	ECUV1C224ZF	001 103 9411 9
C32	ECSE0JY225R	001 123 1026 4
C33	RCUV1E223MB	001 103 9414 6
C34	ECUV1C105ZF	001 103 7118 9
C35	ECEA1CKS4R7L	001 120 6298 7
C36	ECEA0GKS221L	001 120 5907 9
C37, C38	RCUV1E153MB	001 103 9413 7
C39, C40	ECUV1E104MB	001 103 6703 2
C41	RCUV1E223MB	001 103 9414 6
C42	RCUV1H102KB	001 103 8329 6
C43	RCUV1H222KB	001 103 8694 8
C44, C45	RCBC1C222MXY	001 103 9412 8
C46	RCBC1C222MXY	001 103 9412 8
C101	RCUV1H222KB	001 103 8694 8
C102	ECEA0GKK220C	001 120 6297 8
C103	RCUV1H103MB	001 103 9075 5
C104	RCUV1H331KB	001 103 9417 3
C105	ECUV1E104MB	001 103 6703 2
C106	ECUV1C224ZF	001 103 9411 9
C107	RCUV1H102KB	001 103 8329 6
C108	ECUV1C474ZF	001 103 8059 9
C109	ECEA0GKS101L	001 120 5906 0
C110	RCUV1H472MB	001 103 9419 1
C111	RCUV1H822MB	001 103 9420 8
C112	ECSE1VY334R	001 123 1152 9
C113	ECSE1EY474R	001 123 0956 5
C114	RCUV1E333MB	001 103 9415 5
C115	ECUV1C105ZF	001 103 7118 9
C116	RCUV1H102KB	001 103 8329 6
C117	RCUV1E393MB	001 103 9416 4
C118	RCUV1E123KB	001 103 8961 8
C119	RCUV1H392MB	001 103 9418 2
C120	ECUV1C684ZF	001 103 9265 1
C121	ECUV1E224ZF	001 103 6962 5
C122	ECUV1E683MD	
C123, C124	RCUV1E223MB	001 103 9414 6
C125	RCUV1H122KB	001 103 7110 7
C126	RCUV1H331KB	001 103 9417 3
C201	RCUV1H222KB	001 103 8694 8
C202	ECEA0JKS220	001 120 2530 4
C203	RCUV1H103MB	001 103 9075 5
C204	RCUV1H331KB	001 103 9417 3
C205	ECUV1E104MB	001 103 6703 2
C206	ECUV1C224ZF	001 103 9411 9
C207	RCUV1H102KB	001 103 8329 6
C208	ECUV1C474ZF	001 103 8059 9
C209	ECEA0GKS101L	001 120 5906 0
C210	RCUV1H472MB	001 103 9419 1
C211	RCUV1H822MB	001 103 9420 8
C212	ECSE1VY334R	001 123 1152 9
C213	ECSE1EY474R	001 123 0956 5
C214	RCUV1E333MB	001 103 9415 5
C215	ECUV1C105ZF	001 103 7118 9
C216	RCUV1H102KB	001 103 8329 6
C217	RCUV1E393MB	001 103 9416 4
C218	RCUV1E123KB	001 103 8961 8
C219	RCUV1H392MB	001 103 9418 2
C220	ECUV1C684ZF	001 103 9265 1
C221	ECUV1E224ZF	001 103 6962 5
C222	ECUV1E683MD	
C223, C224	RCUV1E223MB	001 103 9414 6
C225	RCUV1H122KB	001 103 7110 7
C226	RCUV1H331KB	001 103 9417 3
C301	RCUV1H102KB	001 103 8329 6
C302	ECEA0GKS330L	001 120 5908 8
C303	ECSE1EY474L	001 123 0955 6
C304	ECEA0GKS221L	001 120 5907 9
C305	ECEA0GKS101L	001 120 5906 0
C306	ECEA0GKS221L	001 120 5907 9
C307	ECEA0GKS101L	001 120 5906 0
C308	ECEA0GKS470L	001 120 5909 7
C309	ECEA1HKS3R3	001 120 3627 2
C310	RCUV1H102KB	001 103 8329 6

MECHANISM PARTS LIST

Ref. No.	Part No.	Part Code	Description
MECHANISM			
CASSETTE DECK			
M1	RNG25Z	015 745 0965 9	GEAR
M2	RNB7Z	015 652 1326 6	BUSH
M3	RNL24Z	015 632 6409 6	PLATE
M4	RHS732Z	015 655 0547 4	FELT
M5	RNB8Z	015 652 1327 5	BUSH
M6	RNW290Z	005 513 3906 9	WASHER
M7	RUQ34Z	015 726 2848 2	SPRING
M8	RUAG0038Z	015 630 2235 6	PLATE ASS'Y
M9	RNLG0009Z	015 718 4226 4	LEVER ASS'Y
M10	RNG22Z	015 745 0966 8	GEAR
M11	RNG23Z	015 745 0967 7	GEAR
M12	RNW166Z	005 513 4092 8	WASHER
M13	RFK18Z	015 718 4234 4	LEVER ASS'Y
M14	RNG17Z	015 745 0964 0	GEAR
M15	RNGG0003Z	015 745 0986 4	GEAR ASS'Y
M16	QXP71723	015 740 0217 3	PRESSURE ROLLER ASS'Y
M17	RNL21Z	015 718 4227 3	LEVER
M18	RUW59Z	015 728 1473 7	SPRING
M19	QXP71722	015 740 0216 4	PRESSURE ROLLER ASS'Y
M20	RNLG0008Z	015 718 4225 5	LEVER ASS'Y
M21	RNRG0011Z	015 712 2244 0	ROD ASSY
M22	RUA684Z	015 630 2236 5	HEAD BASE
M23	QMZ1316	015 630 0796 6	HEAD GUIDE
M24	RJHG0009Z	001 270 1599 0	HEAD BASE ASS'Y
M24-1	RUP2061Z	015 630 2232 9	F.P.C
M25	QBC1496	015 726 0720 5	SPRING
M26	QHQ1363	005 500 4279 0	SCREW
M27	XTN2+4B	005 501 0252 2	SCREW
M28	RFM81Z	002 311 4799 8	MOTOR ASS'Y
M28-1	RHGK613ZA	015 653 1220 0	RUBBER SPACER
M29	RUL798Z	015 632 6408 7	MOTOR PLATE
M30	RMC1056Z	015 601 1020 6	PLATE
M31	XQN17+A25FZ	005 500 5769 3	SCREW
M32	RNRG0012Z	015 712 2307 2	LEVER ASS'Y
M33	RNRG0013ZA	015 712 2308 1	LEVER ASS'Y
M34	RNRG0014Z	015 712 2309 0	LEVER ASS'Y
M35	RNRG0015Z	015 712 2310 7	LEVER ASS'Y
M36	RUAG0044Z	015 630 2287 4	SUB CHASSIS
M37	RNR18Z	015 712 2252 0	CHANGE ROD
M38	RNR17Z	015 712 2251 1	ROCK ROD
M39	RUG83Z	015 641 1321 2	BUTTON BASE
M40	RUW61Z	015 728 1475 5	SPRING
M41	RUD41Z	015 726 2827 7	SPRING
M42	RUW64Z	015 728 1480 8	SPRING
M43	RUW63Z	015 728 1477 3	SPRING
M44	XQN16+CJ35	005 500 5767 5	SCREW
M45	RNG24Z	015 745 0960 4	GEAR
M46	XUBQ4FT	005 512 0279 0	RETAINING RING
M47	RNW123Z	005 513 4091 9	WASHER
M48	QBN2061	015 728 1125 4	SPRING
M49	QBN2062	015 728 1126 3	SPRING
M50	RNW60Z	015 718 4229 1	SPRING
M51	RND1Z	015 716 0090 8	CUM
M52	RNG28Z	015 745 0961 3	GEAR
M53	RNL38Z	015 718 4231 7	LEVER
M54	RNL25Z	015 718 4232 6	CHANGE LEVER
M55	RNW122Z	005 513 4143 4	WASHER
M56	RNG18Z	015 745 0959 7	GEAR
M57	RNL26Z	015 718 4228 2	LEVER
M58	XUBQ3FT	005 512 0281 6	RETAINING RING
M59	XQN16+CF25	005 500 5764 8	SCREW
M60	RUW62Z	015 718 4230 8	SPRING
M61	RNL37Z	015 718 4233 5	LEVER
M62	RUD40Z	015 726 2825 9	SPRING
M63	RNR23Z	015 712 2245 9	CHANGE ROD (B)
M64	XQN16+CM5	005 500 6056 5	SCREW
M65	RUW65Z	015 712 2246 8	ROD
M66	RDRG0002Z	015 741 3460 7	PULLEY ASSY
M67	RDWG0014Z	015 712 2311 6	FLYWHEEL
M68	RDWG0013Z	015 712 2312 5	FLYWHEEL
M69	RDV48Z	015 754 0300 3	BELT
M70	RDV47Z	015 754 0299 9	BELT
M71	RNW214Z	005 513 4093 7	WASHER
M72	QBK92102	005 513 3118 9	WASHER
M73	RNW184Z	005 513 3903 2	WASHER
M74	RUAG0036Z	015 630 2234 7	CHASSIS ASS'Y
M75	XQN16+CF4		SCERW
M76	RHR3097Z	015 652 1335 5	BOSS
M77	XUC2FT	005 512 0126 6	E RING
M78	RHRK532ZA	015 652 1508 2	SPACER

ELECTRICAL PARTS LIST

The leter in square brackets in the Ref. No. column indicates the shipping destination.
[Z]...For all European areas except United Kingdom, F.R. Germany, France, Italy and Finland.
[ZE]...For United Kingdom.

Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS			
IC1	RVITA7358F	001 060 7867 5	I.C, FRONT END
IC2	AN7236S	001 060 8857 3	I.C., FM/AM IF
IC3	RVIBA1360F	001 060 4507 8	I.C, FM MPX
IC4	RVIBA3513AF	001 061 5515 9	I.C, PRE/POWER
IC5	AN7375NS		I.C, DOLBY NR
IC6	RVITK10581L	001 061 5516 8	I.C, G.EQ AMP
IC7	AN6612S	001 060 3744 1	I.C, MOTOR
TRANSISTORS			
Q1	2SC2295B	001 030 1266 6	TRANSISTOR
Q2	2SK160K5	001 030 1967 4	TRANSISTOR
Q3	DTC143XKT96	001 030 7459 5	TRANSISTOR
Q4	DTC143TKT96	001 030 7458 6	TRANSISTOR
Q5, Q6	2SD601RTX	001 030 7094 4	TRANSISTOR
Q7	2SA881SEFR	001 030 4110 3	TRANSISTOR
Q8	DTC143XKT97	001 030 7460 2	TRANSISTOR
DIODES			
D1	1S2090		DIODE
D2	LN25RP	001 032 0298 2	L.E.D
VARIABLE RESISTORS			
VR1	EVND4AA00B14	001 180 2242 3	V.R, FM VCO
VR2	EVMGNGA00B52		V.R, GAIN
VR3	EVMGNGA00B52		V.R, GAIN
VR4	EVUBAAT50A54	001 174 6422 1	V.R, VOLUME
VR5	EVBJS4PA1201	001 174 9119 3	V.R, G.EQ
VR6	EVND1AA00B32	001 180 2870 1	V.R, TAPE SP
VARIABLE CAPACITORS			
CT1, CT2	ECRLA010A12	001 142 0605 8	TRIMMER
CT3, CT4	ECRLA010A12	001 142 0605 8	TRIMMER
CT5	ECRLA010A12	001 142 0605 8	TRIMMER
CT6	ECRLC010A12V	001 142 0673 6	TRIMMER
VC1-4	RCV4LC3RQ	001 141 0433 5	VARIABLE CAPACITOR
VC5, VC6	RCV2C9K1-M	001 141 0617 9	VARIABLE CAPACITOR
COILS AND TRANSFOMERS			
L1	RL04Y148	001 211 3722 8	COIL
L2	RL04Y78	001 211 0962 6	COIL
L3	RL04Y155-0	001 211 4286 3	COIL
L4	RLF2N21-0	001 214 1635 9	BAR ANTENNA COIL
L5	RL02A3	001 210 9986 7	COIL
T1	RLI4A4	001 215 2484 7	I.F.TRANSFORMER
T2	RLI2A22	001 215 2325 1	I.F.TRANSFORMER
(Z)			
T2	RLI2A39-M	001 215 3250 9	FREQUENCY TRANSFORMER
(E)			
T3	RLI4A27	001 215 2478 5	I.F.TRANSFORMER
FILTERS			
CF1	QCRZ107MA5	001 241 0445 4	CERAMIC FILTER
CF2 [Z]	RVFPFA455A	001 241 0645 8	CERAMIC FILTER
CF2	RVFPFA470A		CERAMIC FILTER
(E)			
Z1	RXABPMB8	001 230 1488 0	COMPONENTS COMBINATION
SWITCHES			
S1	RSS2B38YA-A	003 431 3799 5	SW, FUNCTION
S2	RSS3B32Z	003 431 3139 5	SW, BAND
S3, S4	RSS2B38YA-A	003 431 3799 5	SW, TAPE
S5	RSS2B59Z	003 431 3533 9	SW, FM TOUCH
S6	QSS2238	003 431 2450 5	SW, MOTOR
S7	RSH1A59Z	003 435 5664 1	SW, DIRECTION
OTHERS			
J1	RJJD3S5Z	003 400 7041 1	JACK, HEADPONE
J2	RJJB2Z	003 400 5270 8	JACK, DC IN

CABINET PARTS LIST

Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS			
K1	RDGK5616ZA	015 745 1167 7	GEAR
K2	XQN16+A35FR	005 500 2760 4	SCREW
K3	RUAK40ZA	015 630 2615 8	DIAL CHASSIS
K4	RDPK520ZA-0	015 710 0768 5	POINTER
K5	RDPK521ZA	015 710 0769 4	RACK
K6	RBTK17ZA-0	015 700 4715 8	KNOB
K7	RBTK16ZA-0	015 700 4714 9	GEAR
K8	RDGA0001Z	015 745 1000 9	GEAR
K9	RKKK17ZA-0	015 820 8831 0	BATTERY COVER
K10	RJSK3M1ZA	003 400 7912 9	SOCKET
K11	RUQK36ZA	015 726 3111 2	BATTERY TERMINAL
K12	RKFK31ZA-0	015 802 3202 5	REAR CABINET ASS'Y
K13	RYTXSA78M	015 700 4713 0	KNOB ASS'Y
K14	RBDK28ZA-0	015 700 4568 1	KNOB
K15	RBDK42ZA-0	015 700 4711 2	KNOB
K16	RBDK43ZA-0	015 700 4712 1	KNOB
K17	RBDK41ZA-0	015 700 4657 1	KNOB
K18	RHRK2002ZA-0	015 640 0484 3	SHEET
K19	XQN14+A12FC	005 500 3047 8	SCREW
K20	XQN16+A3FZ	005 500 2757 9	SCREW
K21	XWC2B	005 513 1302 9	WASHER
K22	RYMXSA78Z	015 800 6767 1	FRONT CABINET ASS'Y
K23	RUWK86ZA		SPRING
K24	RYQXSA78Z		CASSETTE LID ASS'Y
K25	XQN16+A35FR	005 500 2760 4	SCREW
K26	RUSK14ZA	015 726 3112 1	SPRING
K27	XTN2+8JFZ	005 501 2167 0	SCREW
K28	XQN17+AJ4FZ	005 500 8142 0	SCREW
K29	RUPK103ZA	015 630 2614 9	F, W, C
K30	RYPXSA78M	015 630 2617 6	BACK PLATE ASS'Y
K31	RGXK73ZA-0	015 846 3237 0	ORNAMENT
K32	XQNQC16A4F	005 500 3336 2	SCREW
K33	QHQ1307K	005 500 8138 6	SCREW
K34	RUPK101ZA	015 630 2616 7	P.C.B
K35	XQN17+CJ5FN		SCREW
K36	XTW2+6S		SCREW
K37	XQS16+A18FC	005 500 2804 9	SCREW

ACCESSARY AND PACKING PARTS LIST

Ref. No.	Part No.	Part Code	Description
PACKINGS			
P1	RPKK1098ZA		CARTON BOX
P2	RPNK3042ZA	015 977 3488 3	PAD
P3	RPEK143ZA	015 977 3487 4	PAD
P4	XZB20X20A03H	015 979 0415 2	POLYETHYLENE COVER
P5	RPEK151ZA		PROTECTION COVER
ACCESSORIES			
A1	RP-HV115JR	015 819 0447 7	INSIDE PHONES
A1-1	RHS965ZA-0	015 643 1031 9	EAR PAD
A2	RKE447Z4	015 846 3020 5	BELT CRIPER
A3	RQXK4077ZA	015 983 5093 4	INSTRUCTION BOOK

Printed in Japan
8705083250H HS/HK

D

ORDER NO. AD8912357S0
A1

Service Manual

Supplement

Stereo Radio Cassette Player

Radio Cassette

RX-SA78

Color

(K)...Black Type

Area

Country Code	Area	Color
(M)	For U.S.A.	(K)
(MC)	Canada	
(Z)	For all European areas except United Kingdom, France	
(ZE)	For United Kingdom	
(Zi)	For Italy and Finland	
(ZG)	For F.R. Germany	
(X)	For Asia, Latin America, Middle East and Africa areas	
(XL)	For Australia	
(XC)	For Saudi Arabia	

Please file and use this supplement manual together with the service manual for Model No. RX-SA78, Order No. GAD8704056C1(M area), GAD8802021A1(MC area), GAD8705083C2(Z, ZE,areas), GAD8706121A2(Zi, ZG areas), GAD8707157C3(X, XL areas), or GAD8707162A3(XC area).

Note

- The purpose of this supplement is to an additional in the "Replacement Parts List".
  Please correct your service manual as follows.

CORRECTION

■ REPLACEMENT PARTS LIST

Ref. No.	Change of Parts No. ORIGINAL ➡ NEW		Part Name & Description	Remarks
CABINET AND CHASSIS				
K33	QHQ1307K	**QHQ1370K**	SCREW	

Panasonic®

National/Panasonic

Matsushita Services Company
Division of Matsushita Electric Corporation of America
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Sales Company,
Division of Matsushita Electric of Puerto Rico, Inc.
San Gabriel Industrial Park
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Matsushita Electric Industrial Co., Ltd.
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Osaka 530-91, Japan

Matsushita Electric of Canada Limited
5770 Ambler Drive, Mississauga, Ontario,
L4W 2T3

Printed in Japan
K891216900TN

ORDER NO. GAD8706121A2

Service Manual

Radio Cassette

Stereo Radio Cassette Player

RX-SA78

(Black)

This is the Service Manual
for the following areas.
[ZI].... For Italy and Finland.
[ZG].... For F.R.Germany.

- **Please use this manual together with the service manual for Model No. RX-SA78[Z] order No. GAD8705083C2.**
- **This service manual indicates the main differences between; Original RX-SA78[Z] and RX-SA78[ZI],[ZG].**

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

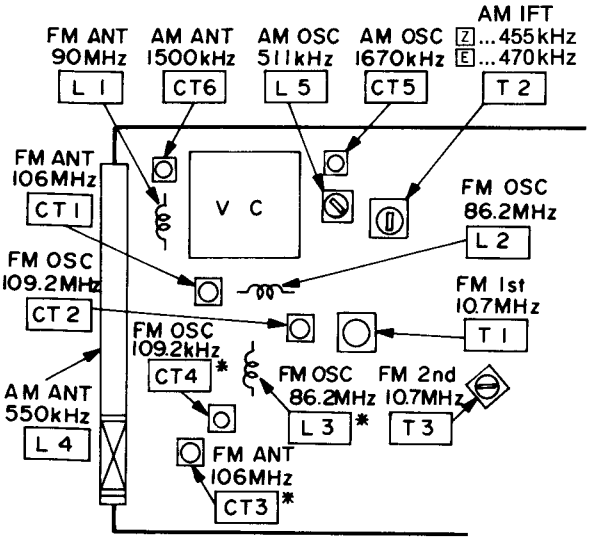
■ REPLACEMENT PARTS LIST

Ref.No.	Description	Parts Number		Remarks
		RX-SA78[Z]	**RX-SA78[ZG][ZI.]**	
C2	Capacitor,50V,12pF	RCUV1H100DC	**RCUV1H120JU**	
C3	Capacitor,50V,22pF	RCUV1H150KC	**RCUV1H220JT**	
C4	Capacitor,50V,100pF	RCUV1H101K	**RCUV1H101JU**	
C7	Capacitor,50V,24pF	RCUV1H180KC	**RCUV1H240KC**	
C8	Capacitor,50V,18pF	RCUV1H150KC	**RCUV1H180KC**	
C44,45	Capacitor,16V,0.001μF	RCBC1C222MXY	**RCBC1C102KBY**	
C46	Capacitor,50V,0.001μF	RCBC1C222MXY	**RCUV1H102KB**	
L1	Coil	RLO4Y148	**RLO4Y155-0**	
L2	Coil	RLO4Y78	**RLO4N184**	
L3	Coil	RLO4Y148	**RLO4N245-0**	
K12	Rear Cabinet Ass'y	RYFXSA78Z	**RYFXSA78ZG**	
K12A	Name Plate	RGTK61WA-0	**RGTK61YA-0**	

MEASUREMENTS AND ADJUSTMENTS

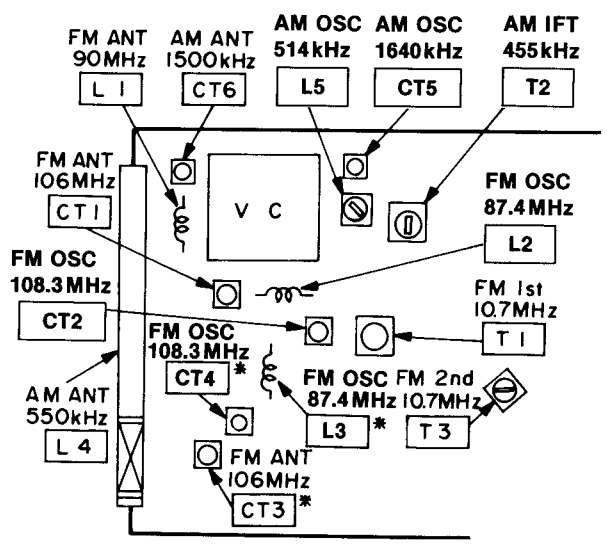
■ ALIGMENT POINTS

• Please refer to Circuit Board and Wiring Connection Diagram for test point locations.



*For FM Preset Tuning.

(Model RX-SA78 [Z])



*For FM Preset Tuning.

(Model RX-SA78 [ZG], [ZI])

D

■ AM ALIGNMENT

	AM-RF ALIGNMENT						
(2)	AM	〃	511kHz	Tuning capacitor fully closed.	〃	L5 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	〃	1,670kHz	Tuning capacitor fully open.	〃	CT5 (AM OSC Trimmer)	〃
(4)	AM	〃	550kHz	Tune to signal.	〃	(•1) L4 (AM ANT Coil)	Adjust for maximum output. Adjust L4 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500kHz	〃	〃	CT6 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
	(*1) Cement antenna bobbin with wax after completing alignment.						

■ FM ALIGNMENT

	FM-RF ALIGNMENT						
(3)	FM	Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	86.2 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2/L3 (*3) (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	〃	CT2/CT4 (*3) (FM OSC Trimmer)	〃
(5)	FM		90MHz	Tune to signal.	〃	L1 (FM ANT Coil)	〃
(6)	FM		106MHz	〃	〃	CT1/CT3 (*3) (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).
	(*2) Three output responses will be present; proper tuning is the center frequency. (*3) For FM Preset Tuning.						

(Model RX-SA78 [Z])

■ AM ALIGNMENT

	AM-RF ALIGNMENT						
(2)	AM	〃	**514kHz**	Tuning capacitor fully closed.	〃	L5 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	〃	**1640kHz**	Tuning capacitor fully open.	〃	CT5 (AM OSC Trimmer)	〃
(4)	AM	〃	550kHz	Tune to signal.	〃	(•1) L4 (AM ANT Coil)	Adjust for maximum output. Adjust L4 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500kHz	〃	〃	CT6 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
	(*1) Cement antenna bobbin with wax after completing alignment.						

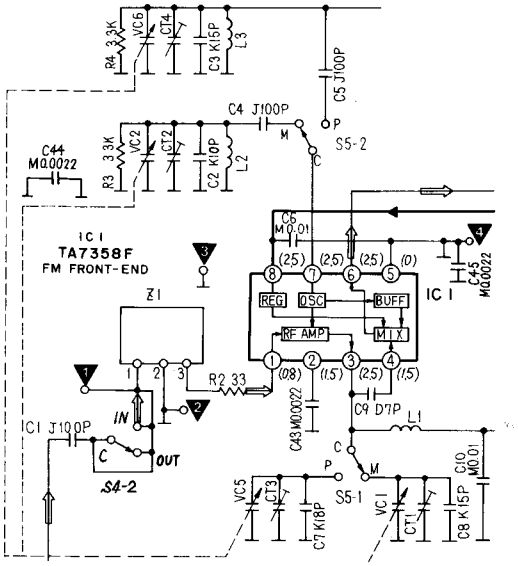
■ FM ALIGNMENT

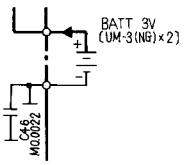
	FM-RF ALIGNMENT						
(3)	FM	Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	**87.4MHz**	Variable capacitor fully closed.	Output meter across voice coil.	L2/L3 (*3) (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		**108.3MHz**	Variable capacitor fully open.	〃	CT2/CT4 (*3) (FM OSC Trimmer)	〃
(5)	FM		90MHz	Tune to signal.	〃	L1 (FM ANT Coil)	〃
(6)	FM		106MHz	〃	〃	CT1/CT3 (*3) (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).
	(*2) Three output responses will be present; proper tuning is the center frequency. (*3) For FM Preset Tuning.						

(Model RX-SA78 [ZG], [ZI])

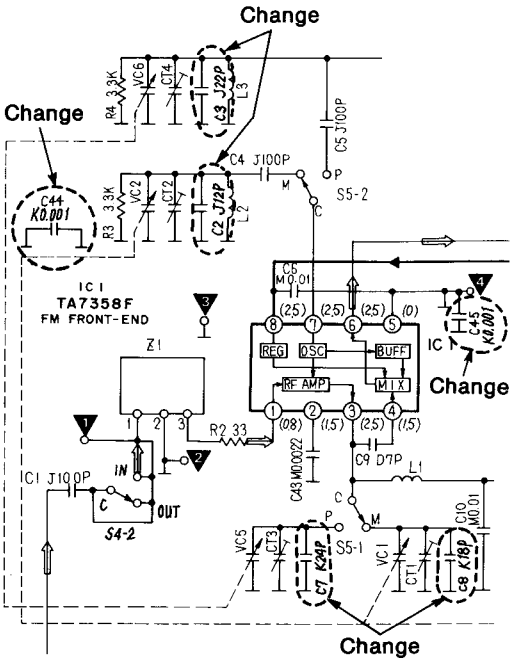
D

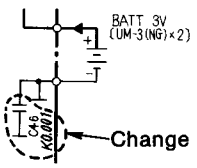
SCHEMATIC DIAGRAM





(Model RX-SA78 [Z])





(Model RX-SA78 [ZG], [ZL])

Printed in Japan
870601260 Ⓗ H.Y/K.H

D

ORDER NO. GAD8705083C2

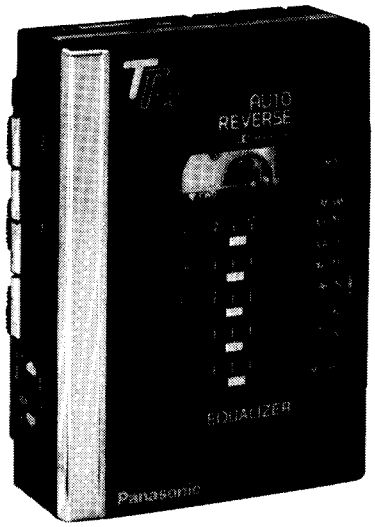
Service Manual

Radio Cassette

Stereo Radio Cassette Player

RX-SA78

(Black)



This is the Service Manual for the following areas.

[Z]···For all European areas except United Kingdom, F.R. Garmany, France, Italy and Finland.

[ZE]···For United Kingdom.

RX-SA77 MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	Battery; 3V (two UM-3, "AA" size batteries) AC; 220V, 50Hz with optional AC adaptor RD-9443HS (For UK, 240V, 50Hz with optional AC adaptor RD-9443HE)
Power Output:	40mW (20mW×2)...RMS (max.)
Input:	DC IN; 3V (mini jack)
Output:	Headphones; 16Ω φ3.5
Dimensions:	84 (W)×113 (H)×33.5 (D)mm
Weight:	270g without batteries

Radio Section:

Radio Frequency Range:	FM; 87.5~108MHz AM; 520~1610kHz
Intermediate Frequency:	FM; 10.7MHz AM; [Z]...455kHz [ZE]...470kHz
Sensitivity;	FM; 3.98μV/1mW output (−3dB Limit sens) (FM Manual Tuning) 3.16μV/1mW output (−3dB Limit sens) (FM Preset Tuning) AM; 100μV/m/1mW output

Tape Deck Section:

Frequency Response:	Normal; 50~12000Hz CrO_2; 50~12000Hz Metal; 50~12000Hz
Motor:	Electrical governor motor
Track System:	4-track 2-channel stero playback
Tape Speed:	4.8cm/s

Design and specifications are subject to change without notice.

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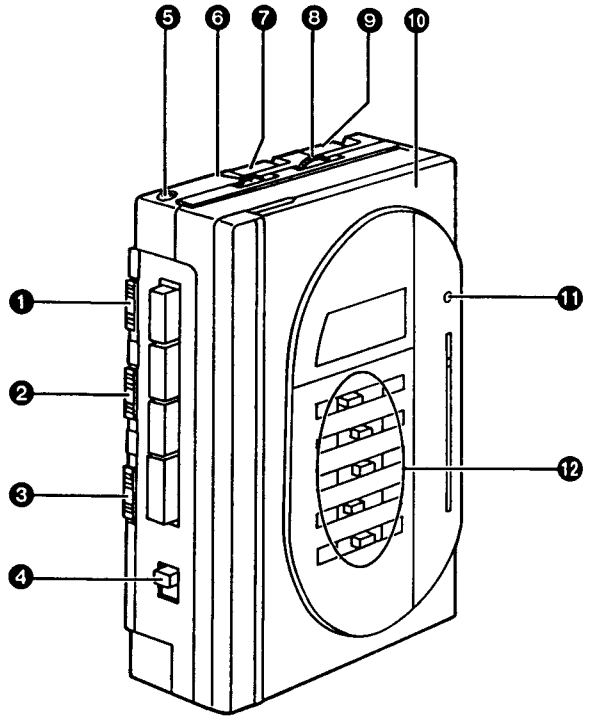
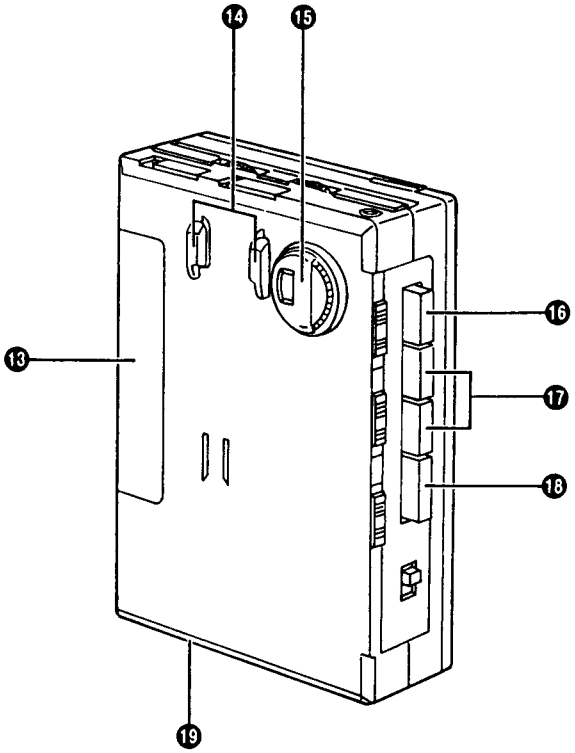
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS





❶ *Dolby Noise Reduction Switch (DOLBY NR)
❷ Tape Selector (TAPE)
❸ Function Selector (SELECTOR)
❹ Tape Direction Selector (DIRECTION)
❺ Headphones Jack ( ) (φ3.5 16Ω)
❻ Volume Control (VOLUME)
❼ Touch 'n' Tune Selector (TOUCH 'n' TUNE)
❽ Tuning Control (TUNING)
❾ Band Selector (BAND)
❿ Cassette Compartment
⓫ FM Stereo Indicator (FM ST)
⓬ Graphic Equalizer Controls (EQUALIZER)
⓭ Battery Compartment
⓮ Clip Receptacle
⓯ FM Preset Tuning Control (FM PRESET TUNING)
⓰ Stop Button (■ STOP)
⓱ Fast Buttons (▲•▼ FAST)
⓲ Playback Button (▲PLAY)
⓳ DC Input Jack [Bottom] (DC IN 3 V ⊖-●-⊕)

*"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

DISASSEMBLY INSTRUCTIONS

■ Disassemble and assemble the unit with care since a flexible printed circuit board is used.

■ Removing the Rear Cabinet

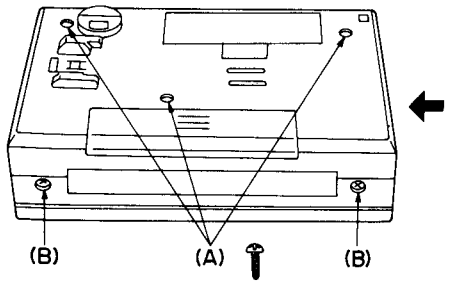


Fig. 1

1. Remove the screws (A) (2 × 8) mm × 3.
2. Remove the screws (B) (1.7 × 4) mm × 2.
3. Push the inside of the Front Cabinet in the direction of arrow.

■ Removing the Main Circuit Board

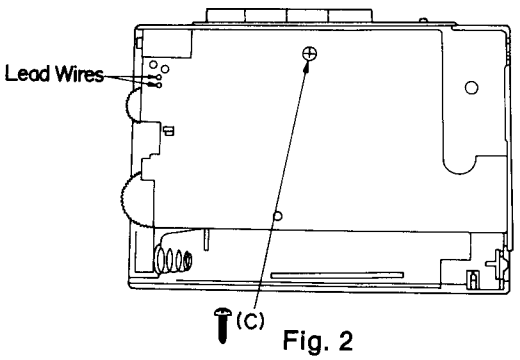


Fig. 2

1. Disconnect the two soldered connections of the lead wires.
2. Remove the screw (C) (1.6 × 4) mm × 1.

■ Removing the Mechanism

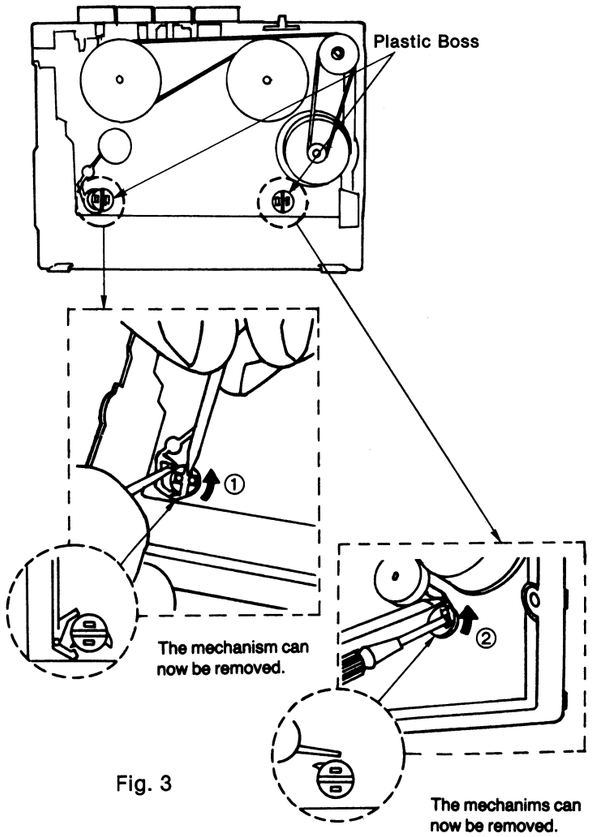


Fig. 3

Remove the lugs of the plastic bosses. Turn each boss 90° in the direction of arrows ① and ②, and remove the mechanism from the cabinet.

■ Dial Setting Point

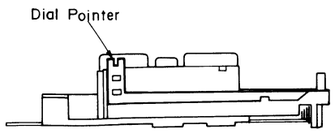


Fig. 7

1. Set the dial pointer to the position shown in Fig. 7.

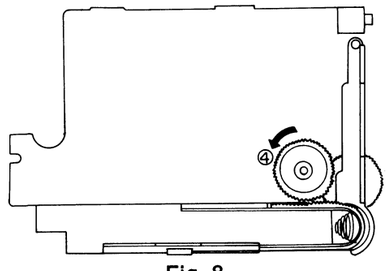


Fig. 8

2. Turn the drum gear fully in the direction of the arrow ④. (Fig. 8)
3. Attach the dial chassis to the main circuit board.

■ Removing the Cassette Compartment and the Graphic Equalizer Circuit Board

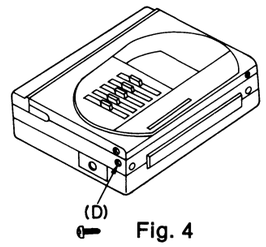


Fig. 4

1. Remove the screw (D) (1.6 × 2) mm × 1.

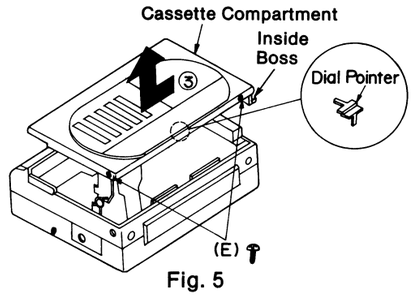


Fig. 5

2. Push the cassette lid in the direction of arrow ③, and disconnect the inside boss.
3. Remove the screw (E) (1.6 × 3) mm × 2.

NOTE:

Remove the graphic equalizer circuit board as shown in Fig. 5. At this time, be careful not to loose the dial pointer.

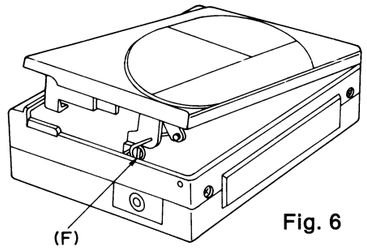


Fig. 6

4. Remove the spring (F).

■ Caution on assembly of Cassette Compartment

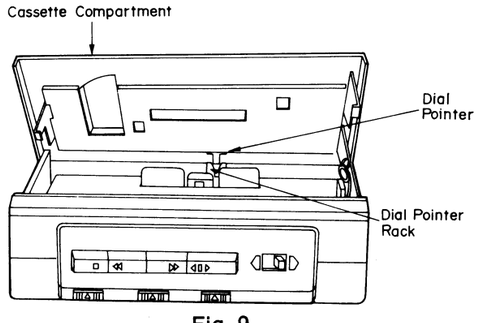


Fig. 9

1. Line up the dial pointer and the dial pointer rack, and securely attach the cassette compartment. (Fig. 9)
2. When attaching a graphic equalizer circuit board to the cassette compartment, remove the cassette compartment from the cabinet, and tighten the screws while holding the circuit board in place with one hand.

■ Caution on assembly of Rear Cabinet

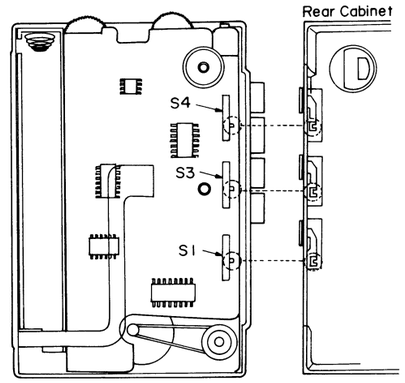


Fig. 10

Line up each switch with its respective switch boss, and securely attach the rear cabinet. (Fig. 10)

■ How to Replace the Cassette Compartment Spring

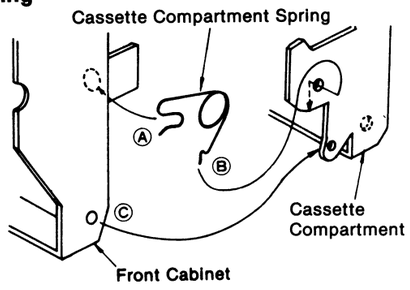


Fig. 11

1. Fit part Ⓐ on the shaft of the front cabinet.
2. Insert part Ⓑ in the hole in the cassette compartment.
3. Fit the boss Ⓒ in the cassette compartment (same on right side).

■ Replacement of a Plastic Boss

If a plastic boss for attachment of the mechanism should become broken, replace it by following the procedure below.

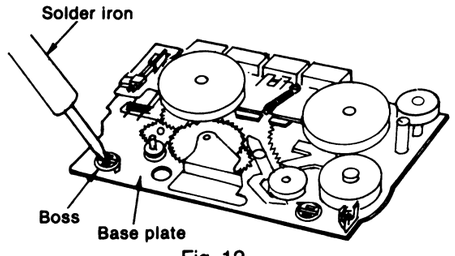


Fig. 12

1. Use a soldering iron to melt and remove the damaged boss.

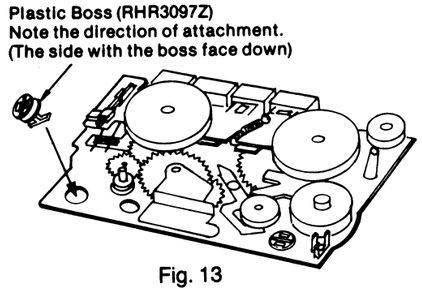
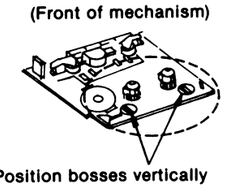


Fig. 13

2. Attach the plastic boss (RHR3097Z) located on the back of the mechanism.
(The boss is not attached to the base plate, so be careful not to lose it until the front cabinet is assembled.)



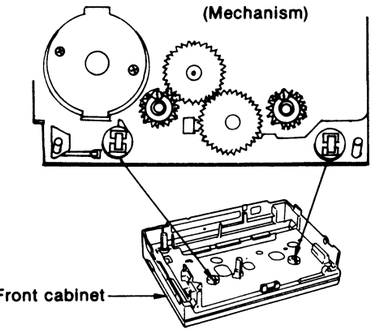


Fig. 14

3. Position plastic bosses vertically and insert them in the holes in the front cabinet. (Make sure they are firmly in place.)

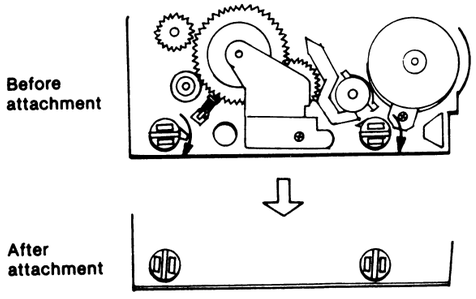


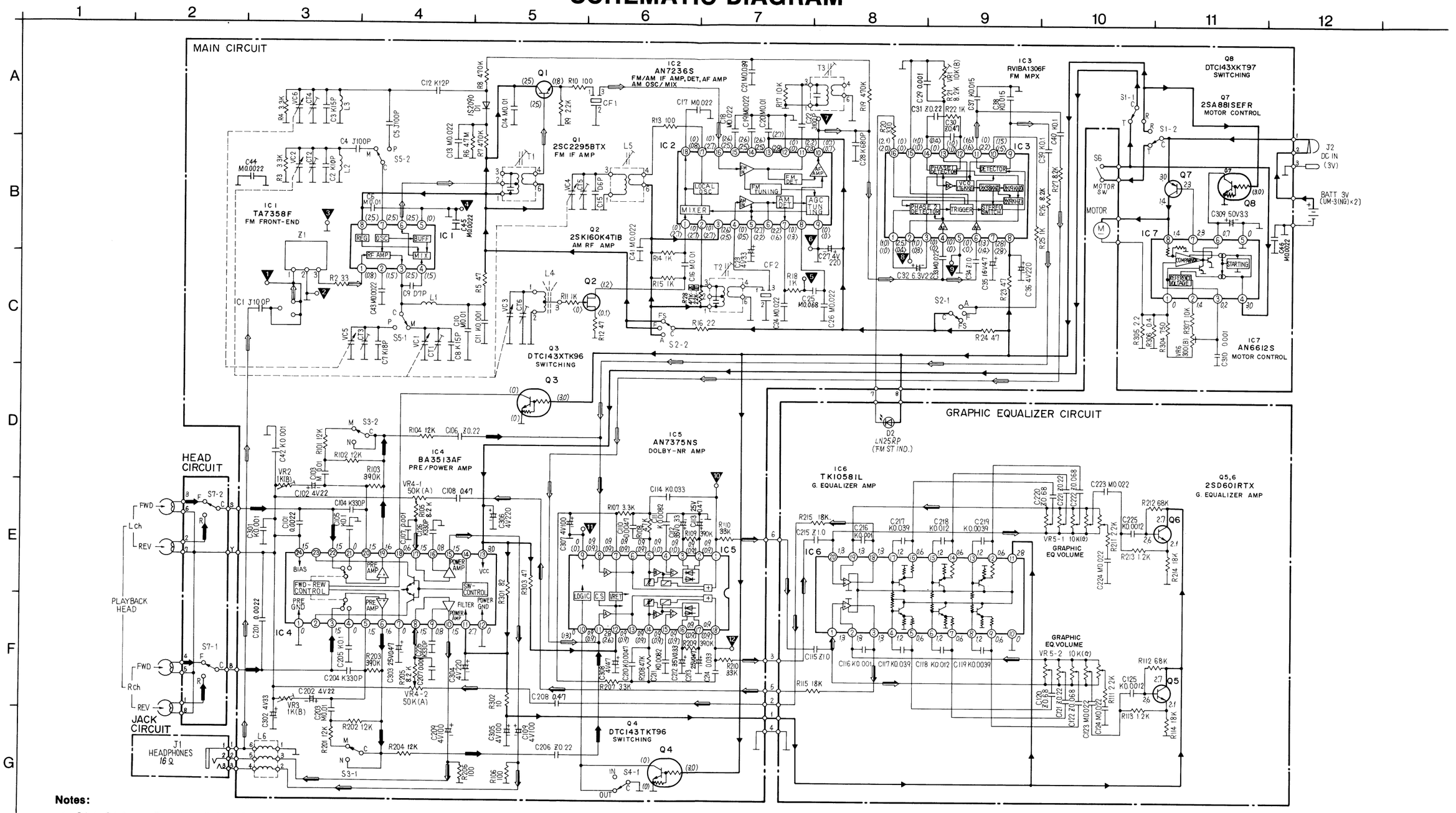
Fig. 15

4. Use a flat-head screwdriver to turn the bosses 90° in the direction of the arrows. (There are lugs in the front cabinet, so the bosses will not turn in the opposite direction.)
5. Make sure the mechanism is secure in the cabinet.

▼ Be sure to fold at the (▼) mark so that mark is on the outside.

D

SCHEMATIC DIAGRAM

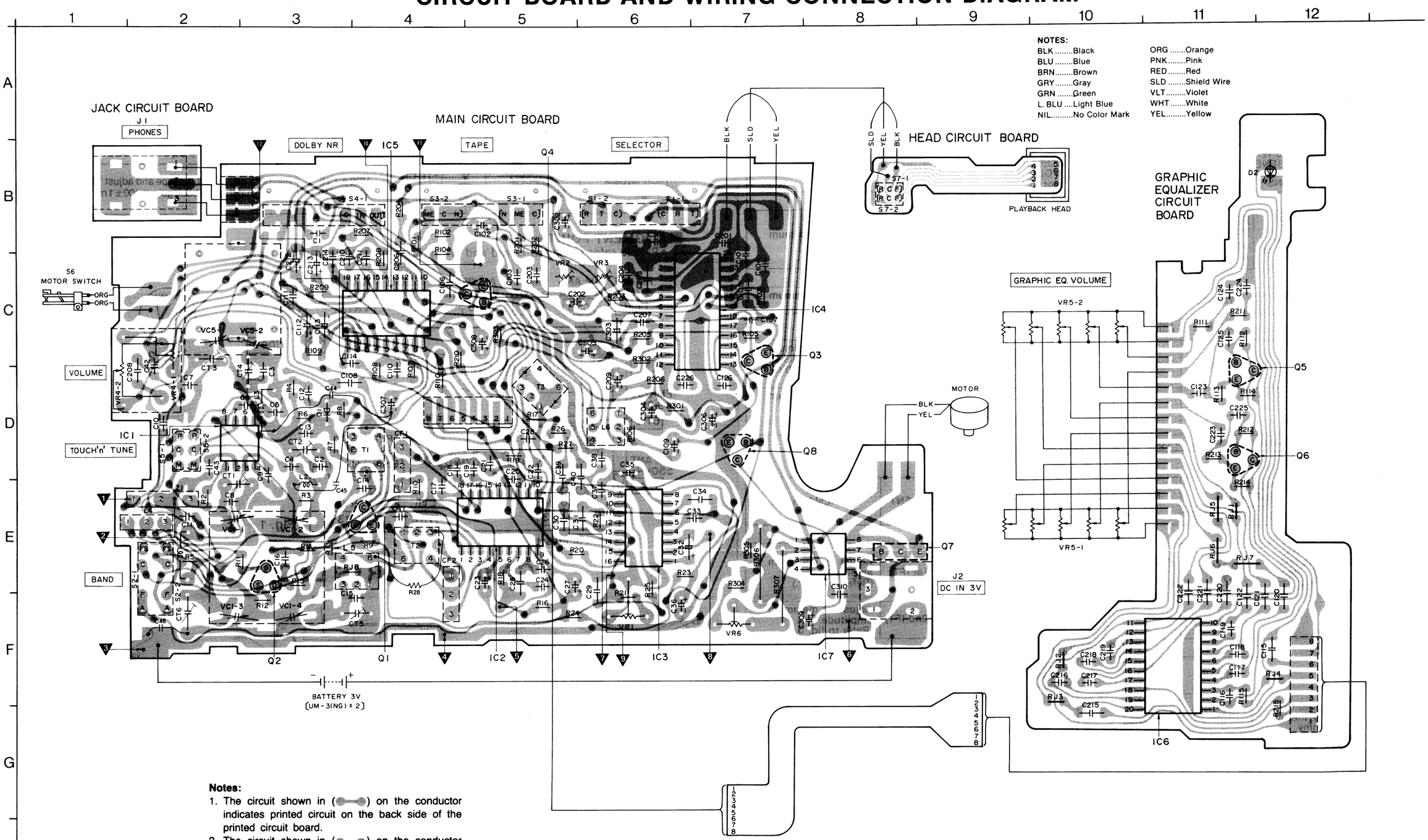


Notes:

1. S1-1, S1-2: Function Select Switch in "TAPE/RADIO OFF" position. (R...Radio, T...TAPE/RADIO OFF)
2. S2-1, S2-2: Band Select Switch in "FM STEREO" position. (F.S...FM STEREO, F...FM MONO, A...AM)
3. S3-1, S3-2: Tape Select Switch in "METAL CrO_2" position. (M...METAL CrO_2, N...NORMAL)
4. S4: Dolby N.R. Switch in "OUT" position.
5. S5-1, S5-2: Touch "n" Tune Switch in "MANUAL" position. (M...MANUAL, P...FM PRESET)
6. S6: Motor Switch in "OFF" position.
7. S7-1, S7-2: Direction Switch in "FWD" position. (F...FWD, R...REV)
8. VR1: FM VCO adjustment VR.
9. VR2: Playback gain (Lch) ajdustment VR.
10. VR3: Playback gain (Rch) adjustment VR.
11. VR4-1, VR4-2: Volume control VR.
12. VR5-1, VR5-2: Graphic equalizer VR.
13. VR6: Tape speed adjustment VR.
14. The mark (▼) shows test point. e.g. ▼1 = test point 1.
15. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery. ( )...FM Position, < >...AM Position, No mark...Playback position, [ ]...Playback (Dolby NR IN) position
16. Battery current: No signal ..... 29mA; Maximum output (radio) ..... 43mA; Maximum output (tape) 264mA
17. The supply parts number is described alone in the replacement parts list.

→ : +B Line
⇨ : Radio (FM) signal Line
➡ : Tape (Playback) signal Line
⇒ : Audio (Tape/Radio) signal Line

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



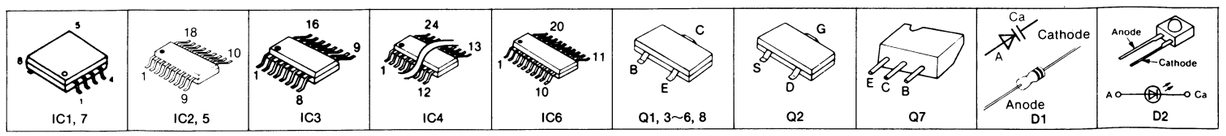
NOTES:

BLK.....Black	ORG.....Orange
BLU.....Blue	PNK.....Pink
BRN.....Brown	RED.....Red
GRY.....Gray	SLD.....Shield Wire
GRN.....Green	VLT.....Violet
L. BLU....Light Blue	WHT.....White
NIL.....No Color Mark	YEL.....Yellow

Notes:

1. The circuit shown in (▬) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in (▬) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

•This circuit board diagram may be modified at any time with the development of new technology.



MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set graphic equalizer control to center.
3. Set band switch to AM or FM ST.
4. Set selector switch to RADIO or TAPE/RADIO [OFF].
5. Set power source voltage to 3V DC.
6. Set Dolby NR Switch to OUT.
7. Set Tape Select Switch to NORMAL.
8. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or.SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		AM-IF ALIGNMENT					
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	[Z]...455kHz [ZE]...470kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
		AM-RF ALIGNMENT					
(2)	AM	〃	511kHz	Tuning capacitor fully closed.	〃	L5 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	〃	1,670kHz	Tuning capacitor fully open.	〃	CT5 (AM OSC Trimmer)	〃
(4)	AM	〃	550kHz	Tune to signal.	〃	(*1) L4 (AM ANT Coil)	Adjust for maximum output. Adjust L4 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500kHz	〃	〃	CT6 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).

(*1) Cement antenna bobbin with wax after completing alignment.

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001μF to test point 4. Negative side to test point 2.	10.7MHz (SWP.)	Point of non-interference. (on/ about 90MHz)	Connect vert. amp. of scope to test point 7. Negative side to test point 3.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point 1 through FM dummy antenna. Negative side to test point 2.	86.2 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2/L3 (*3) (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	〃	CT2/CT4 (*3) (FM OSC Trimmer)	〃
(5)	FM		90MHz	Tune to signal.	〃	L1 (FM ANT Coil)	〃
(6)	FM		106MHz	〃	〃	CT1/CT3 (*3) (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).

(*2) Three output responses will be present; proper tuning is the center frequency. (*3) For FM Preset Tuning.

■ SEPARATION ALIGNMENT

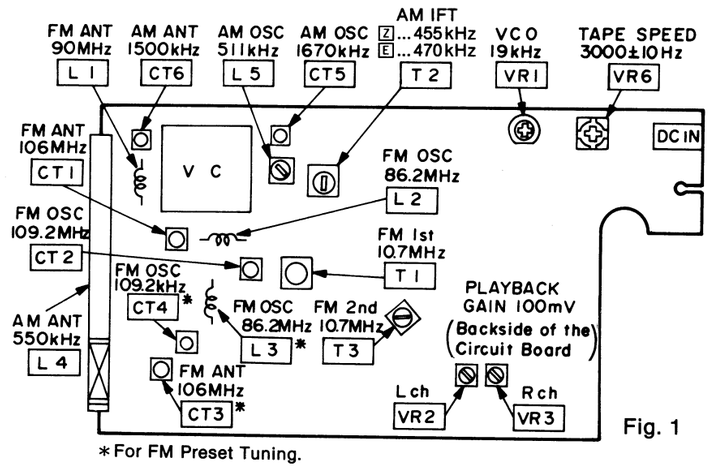
ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98MHz, 60dB (CW) Connect to test point 1 through FM dummy antenna. Negative side to test point 2.	8...(+) 3...(−)	VR1	19kHz	Adjust VR1, for 19kHz (±100Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
(A) Azimuth	QZZCFM (8kHz, −20dB)	Headphones jack (32Ω)	Azimuth adjustment screw (Refer to Fig. 4)	Adjust the azimuth adjustment screw during repeated forward and reverse playback to obtain the maximum head azimuth alignment with both channels equal. Then screw-lock the adjustment in place.
(B) Tape speed	QZZCWAT (3kHz, −10dB)	〃	VR6 (Refer to Fig. 1)	Playback the central part of the tape and adjust VR6 so that the tape speed is as follows. 3000±10Hz (Forward & Reverse)
(C) Playback gain	QZZCFM (315 Hz, 0 dB)	10...(+) L-CH 11...(−) 12...(+) R-CH	VR2 (L-CH) VR3 (R-CH)	Playback any part of the tape and adjust VR2 and VR3 so that the playback gain is 100±1mV.

■ ALIGMENT POINTS

• Please refer to Circuit Board and Wiring Connection Diagram for test point locations.



* For FM Preset Tuning.

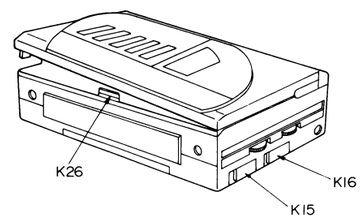
Fig. 1

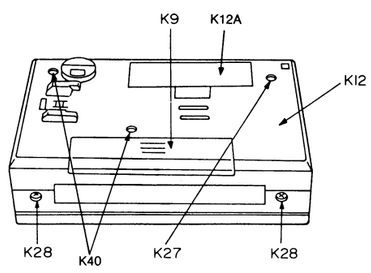
Fig. 2

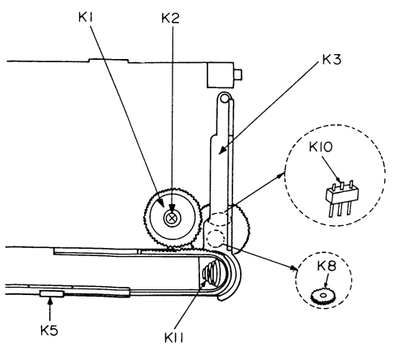
Fig. 3

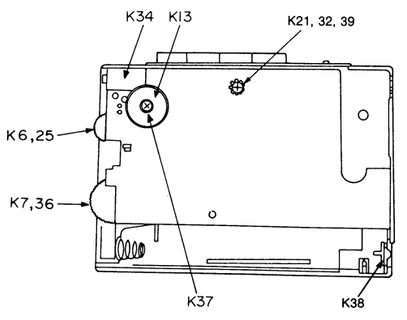
Fig. 4

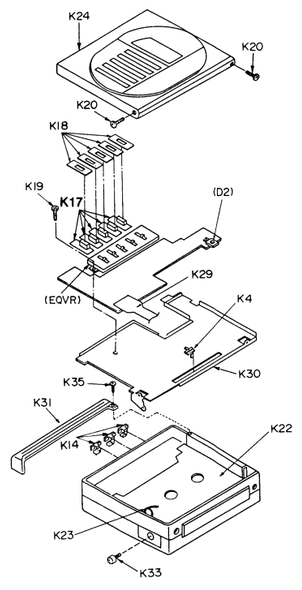
CABINET PARTS LOCATION







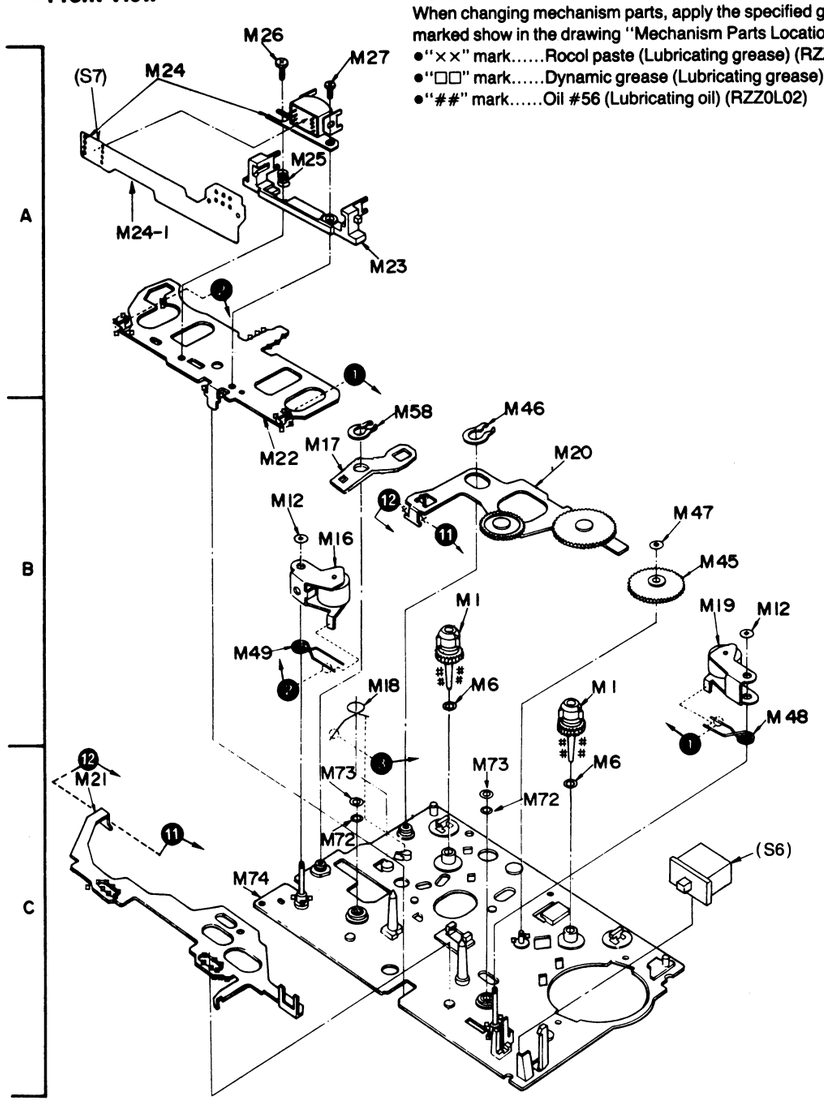




MECHANISM PARTS LOCATION

NOTES:
When changing mechanism parts, apply the specified grease to the area marked show in the drawing "Mechanism Parts Location".
- "××" mark.....Rocol paste (Lubricating grease) (RZZ0L06)
- "□□" mark.....Dynamic grease (Lubricating grease) (RZZ0L05)
- "##" mark.....Oil #56 (Lubricating oil) (RZZ0L02)

• Front View



| | | |

■ RESISTORS & CAPACITORS

Numbering System of Resistor

Example:

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)

ERJ	6G	C	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage	Value (1000pF)	Tolerance	Peculiarity

ECEA	50	M	R47
Type	Voltage	Peculiarity	Value (0.47μF)

Resistor Type		Wattage	Tolerance
ERD:	Carbon Resistor	10 : 1/6W	F : ±1%
ERC:	Solid Resistor	25 : 1/4W	G : ±2%
ERF:	Incombustible Box-Shaped Wire-Wound Resistor	50 : 1/2W	J : ±5%
		18 : 1/6W	K : ±10%
		14 : 1/4W	M : ±20%
		12 : 1/2W	
ERG:	Metal Oxide-Film Resistor	1 : 1W	
		2 : 2W	
ERM:	Wire-Wound Resistor	3 : 3W	
		S1 : 1/2W	
ERO:	Superstable Metal Film Resistor	S2 : 1/4W	
		6G : 1/10W	
		8G : 1/8W	
ERX:	Metal-Film Resistor		
RRJ: ERJ:	Chip Resistor		

※ Capacity are in microfarads (μF) unless specified otherwise, P=Pico-farads.
※ Resistance are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000KΩ

Capacitor Type		Voltage	Tolerance
ECCD:	Ceramic Capacitor (Chitacon)	(ECCD, ECKD Type) 1H : 50V DC 2H : 500V DC	K : ±10%
ECKD:	Ceramic Capacitor (Chitabari)	(ECFD Type) C : 12V DC D : 25V DC	M : ±20%
ECFD:	Semiconductor Ceramic Capacitor	E : 50V DC (ECQ Type)	Z : +80% −20%
ECE□:	Electrolytic Capacitor	05 : 50WV DC 1 : 100WV DC	J : ±5%
ECS□:	Tantalum Fixed Electrolytic Capacitor	(ECE, ECS Type) 0G : 4V 0J : 6.3V	G : ±2%
ECQ□:	Polystyrenc Film Capacitor	1A : 10V 1C : 16V	F : ±1%
ECQS:	Polystyrene Film Capacitor	1E : 25V 1V : 35V	C : ±0.25pF
ECQS:	Polypropylene Film Capacitor	1H : 50V 1J : 63V	D : ±0.5pF
ECQV:	T.F Capacitor	2A : 100V	
ECU□: RCU□:	Chip Capacitor		
ECBT:	Cylindrical Ceramic Capacitor		

The leter in square brackets in the Ref. No. column indicates the shipping destination.
[Z]...For all European areas except United Kingdom, F.R. Germany, France, Italy and Finland.
[ZE]...For United Kingdom.

Ref. No.	Part No.	Part Code
RESISTORS		
R2	RRJ6GCJ330	001 152 5882 3
R3, R4	RRJ6GCJ332TE	001 151 7178 7
R5	RRJ6GCJ470TE	001 151 7180 3
R6	RRJ6GCJ475	001 151 7310 1
R7, R8	RRJ6GCJ474	001 152 5869 0
R9	RRJ6GCJ222TE	001 151 7172 3
R10	RRJ6GCJ101TE	001 151 7162 5
R11	RRJ6GCJ102TE	001 151 7163 4
R12	RRJ6GCJ470TE	001 151 7180 3
R13	RRJ6GCJ101TE	001 151 7162 5
R14, R15	RRJ6GCJ102TE	001 151 7163 4
R16	RRJ6GCJ220TE	001 151 7171 4
R17	RRJ6GCJ103TE	001 151 6750 5
R18	RRJ6GCJ102TE	001 151 7163 4
R19	RRJ6GCJ474	001 152 5869 0
R20	RRJ6GCJ331TE	001 151 7177 8
R21	RRJ6GCJ822	001 152 5871 6
R22	RRJ6GCJ102TE	001 151 7163 4
R23, R24	RRJ6GCJ470TE	001 151 7180 3
R25	RRJ6GCJ102TE	001 151 7163 4
R26, R27	RRJ6GCJ822	001 152 5871 6
R28 (E)	ERD16TJ223	001 152 3977 5
R28 (Z)	ERD16TJ473	001 152 3991 7
R101, R102	RRJ6GCJ123TE	001 151 6449 7
R103	RRJ6GCJ394TE	001 151 7179 6
R104	RRJ6GCJ123TE	001 151 6449 7
R105	RRJ6GCJ822	001 152 5871 6
R106	RRJ6GCJ101TE	001 151 7162 5
R107	RRJ6GCJ332TE	001 151 7178 7
R108	RRJ6GCJ473TE	001 151 6450 4
R109	RRJ6GCJ394TE	001 151 7179 6
R110	RRJ6GCJ333	001 152 5867 2
R111	RRJ6GCJ222TE	001 151 7172 3
R112	RRJ6GCJ683TE	001 151 6684 8
R113	RRJ6GCJ122	001 151 7222 0
R114, R115	RRJ6GCJ183TE	001 151 6506 5
R201, R202	RRJ6GCJ123TE	001 151 6449 7
R203	RRJ6GCJ394TE	001 151 7179 6
R204	RRJ6GCJ123TE	001 151 6449 7
R205	RRJ6GCJ822	001 152 5871 6
R206	RRJ6GCJ101TE	001 151 7162 5
R207	RRJ6GCJ332TE	001 151 7178 7
R208	RRJ6GCJ473TE	001 151 6450 4
R209	RRJ6GCJ394TE	001 151 7179 6
R210	RRJ6GCJ333	001 152 5867 2
R211	RRJ6GCJ222TE	001 151 7172 3
R212	RRJ6GCJ683TE	001 151 6684 8
R213	RRJ6GCJ122	001 151 7222 0
R214, R215	RRJ6GCJ183TE	001 151 6506 5
R301	RRJ6GCJ820TE	001 151 7027 1
R302	RRJ6GCJ100TE	001 151 6749 8
R303	RRJ6GCJ470TE	001 151 7180 3
R304	RRJ6GCJ751TE	001 151 7311 0
R305	RRJ6GCJ2R2TE	001 103 9180 5
R306	ERSB39JR40	001 151 4007 7
R307	ERSB15J103	001 151 2888 4
RJ1, RJ2	RRJ6GCJ000TE	001 151 7161 6
RJ3, RJ4	RRJ6GCJ000TE	001 151 7161 6
RJ5, RJ6	RRD18XJ000E	001 151 2751 0
RJ7	RRD18XJ000E	001 151 2751 0
RJ8	RRJ6GCJ000TE	001 151 7161 6
CAPACITORS		
C1	RCUV1H101K	001 103 9229 5
C2	RCUV1H100DC	001 103 8826 4
C3, C3	RCUV1H150KC	001 103 9235 7
C4, C5	RCUV1H101K	001 103 9229 5
C6	RCUV1H103MB	001 103 9075 5
C7	RCUV1H180KC	001 103 9239 3
C8	RCUV1H150KC	001 103 9235 7
C9	RCUV1H070D	001 103 9152 9
C10	RCUV1H103MB	001 103 9075 5
C11	RCUV1H102KB	001 103 8329 6
C12	RCUV1H120KC	001 103 9233 9
C13	RCUV1E223MB	001 103 9414 6
C14	RCUV1H103MB	001 103 9075 5
C15	RCUV1H060D	001 103 8962 7
C16	RCUV1H103MB	001 103 9075 5
C17, C18	RCUV1E223MB	001 103 9414 6
C19	RCUV1E223MB	001 103 9414 6
C20	RCUV1H103MB	001 103 9075 5
C21	RCUV1E393MB	001 103 9416 4
C22	RCUV1H101K	001 103 9229 5
C23	ECEA0GKS330L	001 120 5908 8
C24	RCUV1E223MB	001 103 9414 6
C25	ECUV1E683MD	
C26	RCUV1E223MB	001 103 9414 6
C27	ECEA0GKS221L	001 120 5907 9
C28	RCUV1H681KB	001 103 9255 3
C29	ECUV1H102KC	001 103 6755 0
C30	ECUV1C474ZF	001 103 8059 9
C31	ECUV1C224ZF	001 103 9411 9
C32	ECSE0JY225R	001 123 1026 4
C33	RCUV1E223MB	001 103 9414 6
C34	ECUV1C105ZF	001 103 7118 9
C35	ECEA1CKS4R7L	001 120 6298 7
C36	ECEA0GKS221L	001 120 5907 9
C37, C38	RCUV1E153MB	001 103 9413 7
C39, C40	ECUV1E104MB	001 103 6703 2
C41	RCUV1E223MB	001 103 9414 6
C42	RCUV1H102KB	001 103 8329 6
C43	RCUV1H222KB	001 103 8694 8
C44, C45	RCBC1C222MXY	001 103 9412 8
C46	RCBC1C222MXY	001 103 9412 8
C101	RCUV1H222KB	001 103 8694 8
C102	ECEA0GKK220C	001 120 6297 8
C103	RCUV1H103MB	001 103 9075 5
C104	RCUV1H331KB	001 103 9417 3
C105	ECUV1E104MB	001 103 6703 2
C106	ECUV1C224ZF	001 103 9411 9
C107	RCUV1H102KB	001 103 8329 6
C108	ECUV1C474ZF	001 103 8059 9
C109	ECEA0GKS101L	001 120 5906 0
C110	RCUV1H472MB	001 103 9419 1
C111	RCUV1H822MB	001 103 9420 8
C112	ECSE1VY334R	001 123 1152 9
C113	ECSE1EY474R	001 123 0956 5
C114	RCUV1E333MB	001 103 9415 5
C115	ECUV1C105ZF	001 103 7118 9
C116	RCUV1H102KB	001 103 8329 6
C117	RCUV1E393MB	001 103 9416 4
C118	RCUV1E123KB	001 103 8961 8
C119	RCUV1H392MB	001 103 9418 2
C120	ECUV1C684ZF	001 103 9265 1
C121	ECUV1E224ZF	001 103 6962 5
C122	ECUV1E683MD	
C123, C124	RCUV1E223MB	001 103 9414 6

Ref. No.	Part No.	Part Code
C125	RCUV1H122KB	001 103 7110 7
C126	RCUV1H331KB	001 103 9417 3
C201	RCUV1H222KB	001 103 8694 8
C202	ECEA0JKS220	001 120 2530 4
C203	RCUV1H103MB	001 103 9075 5
C204	RCUV1H331KB	001 103 9417 3
C205	ECUV1E104MB	001 103 6703 2
C206	ECUV1C224ZF	001 103 9411 9
C207	RCUV1H102KB	001 103 8329 6
C208	ECUV1C474ZF	001 103 8059 9
C209	ECEA0GKS101L	001 120 5906 0
C210	RCUV1H472MB	001 103 9419 1
C211	RCUV1H822MB	001 103 9420 8
C212	ECSE1VY334R	001 123 1152 9
C213	ECSE1EY474R	001 123 0956 5
C214	RCUV1E333MB	001 103 9415 5
C215	ECUV1C105ZF	001 103 7118 9
C216	RCUV1H102KB	001 103 8329 6
C217	RCUV1E393MB	001 103 9416 4
C218	RCUV1E123KB	001 103 8961 8
C219	RCUV1H392MB	001 103 9418 2
C220	ECUV1C684ZF	001 103 9265 1
C221	ECUV1E224ZF	001 103 6962 5
C222	ECUV1E683MD	
C223, C224	RCUV1E223MB	001 103 9414 6
C225	RCUV1H122KB	001 103 7110 7
C226	RCUV1H331KB	001 103 9417 3
C301	RCUV1H102KB	001 103 8329 6
C302	ECEA0GKS330L	001 120 5908 8
C303	ECSE1EY474L	001 123 0955 6
C304	ECEA0GKS221L	001 120 5907 9
C305	ECEA0GKS101L	001 120 5906 0
C306	ECEA0GKS221L	001 120 5907 9
C307	ECEA0GKS101L	001 120 5906 0
C308	ECEA0GKS470L	001 120 5909 7
C309	ECEA1HKS3R3	001 120 3627 2
C310	RCUV1H102KB	001 103 8329 6

MECHANISM PARTS LIST

Ref. No.	Part No.	Part Code	Description
MECHANISM			
CASSETTE DECK			
M1	RNG25Z	015 745 0965 9	GEAR
M2	RNB7Z	015 652 1326 6	BUSH
M3	RNL24Z	015 632 6409 6	PLATE
M4	RHS732Z	015 655 0547 4	FELT
M5	RNB8Z	015 652 1327 5	BUSH
M6	RNW290Z	005 513 3906 9	WASHER
M7	RUQ34Z	015 726 2848 2	SPRING
M8	RUAG0038Z	015 630 2235 6	PLATE ASS'Y
M9	RNLG0009Z	015 718 4226 4	LEVER ASS'Y
M10	RNG22Z	015 745 0966 8	GEAR
M11	RNG23Z	015 745 0967 7	GEAR
M12	RNW166Z	005 513 4092 8	WASHER
M13	RFK18Z	015 718 4234 4	LEVER ASS'Y
M14	RNG17Z	015 745 0964 0	GEAR
M15	RNGG0003Z	015 745 0986 4	GEAR ASS'Y
M16	QXP71723	015 740 0217 3	PRESSURE ROLLER ASS'Y
M17	RNL21Z	015 718 4227 3	LEVER
M18	RUW59Z	015 728 1473 7	SPRING
M19	QXP71722	015 740 0216 4	PRESSURE ROLLER ASS'Y
M20	RNLG0008Z	015 718 4225 5	LEVER ASS'Y
M21	RNRG0011Z	015 712 2244 0	ROD ASSY
M22	RUA684Z	015 630 2236 5	HEAD BASE
M23	QMZ1316	015 630 0796 6	HEAD GUIDE
M24	RJHG0009Z	001 270 1599 0	HEAD ASS'Y
M24-1	RUP2061Z	015 630 2232 9	F.W.C
M25	QBC1496	015 726 0720 5	SPRING
M26	QHQ1363	005 500 4279 0	SCREW
M27	XTN2+4B	005 501 0252 2	SCREW
M28	RFM81Z	002 311 4799 8	MOTOR ASS'Y
M28-1	RHGK613ZA	015 653 1220 0	RUBBER SPACER
M29	RUL798Z	015 632 6408 7	MOTOR PLATE
M30	RMC1056Z	015 601 1020 6	PLATE
M31	XQN17+A25FZ	005 500 5769 3	SCREW
M32	RNRG0012Z	015 712 2307 2	LEVER ASS'Y
M33	RNRG0013ZA	015 712 2308 1	LEVER ASS'Y
M34	RNRG0014Z	015 712 2309 0	LEVER ASS'Y
M35	RNRG0015Z	015 712 2310 7	LEVER ASS'Y
M36	RUAG0044Z	015 630 2287 4	SUB CHASSIS
M37	RNR18Z	015 712 2252 0	CHANGE ROD
M38	RNR17Z	015 712 2251 1	ROCK ROD
M39	RUG83Z	015 641 1321 2	BUTTON BASE
M40	RUW61Z	015 728 1475 5	SPRING
M41	RUD41Z	015 726 2827 7	SPRING
M42	RUW64Z	015 728 1480 8	SPRING
M43	RUW63Z	015 728 1477 3	SPRING
M44	XQN16+CJ35	005 500 5767 5	SCREW
M45	RNG24Z	015 745 0960 4	GEAR
M46	XUBQ4FT	005 512 0279 0	RETAINING RING
M47	RNW123Z	005 513 4091 9	WASHER
M48	QBN2061	015 728 1125 4	SPRING
M49	QBN2062	015 728 1126 3	SPRING
M50	RNW60Z	015 718 4229 1	SPRING
M51	RND1Z	015 716 0090 8	CUM
M52	RNG28Z	015 745 0961 3	GEAR
M53	RNL38Z	015 718 4231 7	LEVER
M54	RNL25Z	015 718 4232 6	CHANGE LEVER
M55	RNW122Z	005 513 4143 4	WASHER
M56	RNG18Z	015 745 0959 7	GEAR
M57	RNL26Z	015 718 4228 2	LEVER
M58	XUBQ3FT	005 512 0281 6	RETAINING RING
M59	XQN16+CF25	005 500 5764 8	SCREW
M60	RUW62Z	015 718 4230 8	SPRING
M61	RNL37Z	015 718 4233 5	LEVER
M62	RUD40Z	015 726 2825 9	SPRING
M63	RNR23Z	015 712 2245 9	DIRECTION LEVER
M64	XQN16+CM5	005 500 6056 5	SCREW
M65	RUW65Z	015 712 2246 8	SPRING
M66	RDRG0002Z	015 741 3460 7	PULLEY ASSY
M67	RDWG0014Z	015 712 2311 6	FLYWHEEL
M68	RDWG0013Z	015 712 2312 5	FLYWHEEL
M69	RDV48Z	015 754 0300 3	BELT
M70	RDV47Z	015 754 0299 9	BELT
M71	RNW214Z	005 513 4093 7	WASHER
M72	QBK92102	005 513 3118 9	WASHER
M73	RNW184Z	005 513 3903 2	WASHER
M74	RUAG0036Z	015 630 2234 7	CHASSIS ASS'Y
M75	XQN16+CF4		SCERW
M76	RHR3097Z	015 652 1335 5	BOSS
M77	XUC2FT	005 512 0126 6	E RING
M78	RHRK532ZA	015 652 1508 2	SPACER

ELECTRICAL PARTS LIST

The leter in square brackets in the Ref. No. column indicates the shipping destination.
[Z]...For all European areas except United Kingdom, F.R. Germany, France, Italy and Finland.
[ZE]...For United Kingdom.

Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS			
IC1	RVITA7358F	001 060 7867 5	I.C. FRONT END
IC2	AN7236S	001 060 8857 3	I.C., FM/AM IF
IC3	RVIBA1360F	001 060 4507 8	I.C. FM MPX
IC4	RVIBA3513AF	001 061 5515 9	I.C. PRE/POWER
IC5	AN7375NS		I.C. DOLBY NR
IC6	RVITK10581L	001 061 5516 8	I.C. G.EQ AMP
IC7	AN6612S	001 060 3744 1	I.C. MOTOR
TRANSISTORS			
Q1	2SC2295B	001 030 1266 6	TRANSISTOR
Q2	2SK160K5	001 030 1967 4	TRANSISTOR
Q3	DTC143XKT96	001 030 7459 5	TRANSISTOR
Q4	DTC143TKT96	001 030 7458 6	TRANSISTOR
Q5, Q6	2SD601RTX	001 030 7094 4	TRANSISTOR
Q7	2SA881SEFR	001 030 4110 3	TRANSISTOR
Q8	DTC143XKT97	001 030 7460 2	TRANSISTOR
DIODES			
D1	1S2090		DIODE
D2	LN25RP	001 032 0298 2	L.E.D
VARIABLE RESISTORS			
VR1	EVND4AA00B14	001 180 2242 3	V.R. FM VCO
VR2	EVM6NGA00B52		V.R. GAIN
VR3	EVM6NGA00B52		V.R. GAIN
VR4	EVUBAAT50A54	001 174 6422 1	V.R. VOLUME
VR5	EVBJS4PA1201	001 174 9119 3	V.R. G.EQ
VR6	EVND1AA00B32	001 180 2870 1	V.R. TAPE SP
VARIABLE CAPACITORS			
CT1, CT2	ECRLA010A12	001 142 0605 8	TRIMMER
CT3, CT4	ECRLA010A12	001 142 0605 8	TRIMMER
CT5	ECRLA010A12	001 142 0605 8	TRIMMER
CT6	ECRLC010A12V	001 142 0673 6	TRIMMER
VC1-4	RCV4LC3RQ	001 141 0433 5	VARIABLE CAPACITOR
VC5, VC6	RCV2C9K1-M	001 141 0617 9	VARIABLE CAPACITOR
COILS AND TRANSFOMERS			
L1	RL04Y148	001 211 3722 8	COIL
L2	RL04Y78	001 211 0962 6	COIL
L3	RL04Y148	001 211 4286 3	COIL
L4	RLF2N21-0	001 214 1635 9	BAR ANTENNA COIL
L5	RL02A3	001 210 9986 7	COIL
L6	RLQUR63K		COIL
T1	RLI4A4	001 215 2484 7	I.F.TRANSFORMER
T2	RLI2A22	001 215 2325 1	I.F.TRANSFORMER
(Z)			
T2	RLI2A39-M	001 215 3250 9	FREQUENCY TRANSFORMER
(E)			
T3	RLI4A27	001 215 2478 5	I.F.TRANSFORMER
FILTERS			
CF1	QCRZ107MA5	001 241 0445 4	CERAMIC FILTER
CF2 [Z]	RVFPFA455A	001 241 0645 8	CERAMIC FILTER
CF2	RVFPFA470A		CERAMIC FILTER
(E)			
Z1	RXABPM88	001 230 1488 0	COMPONENTS COMBINATION
SWITCHES			
S1	RSS2B38YA-A	003 431 3799 5	SW. FUNCTION
S2	RSS3B32Z	003 431 3139 5	SW. BAND
S3, S4	RSS2B38YA-A	003 431 3799 5	SW. TAPE
S5	RSS2B59Z	003 431 3533 9	SW. FM TOUCH
S6	QSS2238	003 431 2450 5	SW. MOTOR
S7	RSH1A59Z	003 435 5664 1	SW. DIRECTION
OTHERS			
J1	RJJD3S5Z	003 400 7041 1	JACK, HEADPONE
J2	RJJB2Z	003 400 5270 8	JACK, DC IN

CABINET PARTS LIST

Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS			
K1	RDGK5616ZA	015 745 1167 7	GEAR
K2	XQN16+A35FR	005 500 2760 4	SCREW
K3	RUAK40ZA	015 630 2615 8	DIAL CHASSIS
K4	RDPK520ZA-0	015 710 0768 5	POINTER
K5	RDPK521ZA	015 710 0769 4	RACK
K6	RBTK17ZA-0	015 700 4715 8	KNOB
K7	RBTK16ZA-0	015 700 4714 9	KNOB
K8	RDGA0001Z	015 745 1000 9	GEAR
K9	RKKK17ZA-0	015 820 8831 0	BATTERY COVER
K10	RJSK3M1ZA	003 400 7912 9	SOCKET
K11	RUQK36ZA	015 726 3111 2	BATTERY TERMINAL
K12	RYFXSA78Z		REAR CABINET ASS'Y
K12A	RGTK61WA-0		NAME PLATE
K13	RYTXSA78M	015 700 4713 0	KNOB ASS'Y
K14	RBDK28ZA-0	015 700 4568 1	KNOB
K15	RBDK42ZA-0	015 700 4711 2	KNOB
K16	RBDK43ZA-0	015 700 4712 1	KNOB
K17	RBDK41ZA-0	015 700 4657 1	KNOB
K18	RHRK2002ZA-0	015 640 0484 3	SHEET
K19	XQN14+A12FC	005 500 3047 8	SCREW
K20	XQN16+A3FZ	005 500 2757 9	SCREW
K21	XWC17BY		WASHER
K22	RYMXSA78Z	015 800 6767 1	FRONT CABINET ASS'Y
K23	RUWK86ZA		SPRING
K24	RYQXSA78Z		CASSETTE LID ASS'Y
K25	XQN16+A35FR	005 500 2760 4	SCREW
K26	RUSK14ZA	015 726 3112 1	SPRING
K27	XTN2+8BFV		SCREW
K28	XQN17+AJ5FZ	005 500 8142 0	SCREW
K29	RUPK103ZA	015 630 2614 9	F.W.C
K30	RYPXSA78M	015 630 2617 6	BACK PLATE ASS'Y
K31	RGXK73ZA-0	015 846 3237 0	ORNAMENT
K32	XQN16+A55	005 500 3336 2	SCREW
K33	QHQ1307K	005 500 8138 6	SCREW
K34	RUPK101ZA	015 630 2616 7	P.C.B
K35	XQN17+C5FN		SCREW
K36	XTW2+6S		SCREW
K37	XQS16+A18FC	005 500 2804 9	SCREW
K38	RJCA0001Z		BATTERY TERMINAL
K39	XWA17		WASHER
K40	XTN2+10JFZ		SCREW

ACCESSARY AND PACKING PARTS LIST

Ref. No.	Part No.	Part Code	Description
PACKINGS			
P1	RPKK1098ZA		CARTON BOX
P2	RPNK3042ZA	015 977 3488 3	PAD
P3	RPEK143ZA	015 977 3487 4	PAD
P4	XZB20X20A03H	015 979 0415 2	POLYETHYLENE COVER
P5	RPEK151ZA		PROTECTION COVER
ACCESSORIES			
A1	RP-HV115JR	015 819 0447 7	INSIDE PHONES
A1-1	RHS965ZA-0	015 643 1031 9	EAR PAD
A2	RKE447Z4	015 846 3020 5	BELT CRIPER
A3	RQXK4077ZA	015 983 5093 4	INSTRUCTION BOOK

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